

RECEIVED
MAR 22 1989

1987 ALBERTA HOUSE COST COMPARISON STUDY

Executive Summary

Single Detached Dwelling
24 Unit
Walk-up Apartment

Alberta
MUNICIPAL AFFAIRS
Housing Division

PREFACE	1
---------	---

1.0 INTRODUCTION	2
1.1 Objectives	3
1.2 Scope of Work	3
1.3 Approach	3
1.4 Findings	7

1987 ALBERTA HOUSE COST COMPARISON STUDY

2.0 SUMMARY OF FINDINGS	9
20.1 Total Building Costs	10
20.2 Comparative Cost Ratios	11
20.3 Comparative Cost Tables	12
20.4 Comparative Building Cost Bar Chart 1980-1987	13
20.5 Comparative Total Building Costs	14
20.6 Comparative Cost Per Square Foot of Gross Floor Area 1980-1987	15
20.7 Comparative Total Building Cost Graphs 1980-1987	16
20.8 Comparative Total Building Costs 1980-1987 Inflation Adjusted Dollars	18
20.9 Comparative Total Building Cost Graphs 1980-1987 Inflation Adjusted Dollars	19
20.10 Trade Division Cost Summaries	21

EXECUTIVE SUMMARY

NOVEMBER 1987

3.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT	23
30.1 Total Building Costs	24
30.2 Comparative Cost Ratios	25
30.3 Comparative Cost Tables 1980-1987	26
30.4 Comparative Building Cost Bar Chart 1980-1987	27
30.5 Comparative Total Building Costs	28
30.6 Comparative Cost Per Square Foot of Gross Floor Area	29
30.7 Comparative Total Building Cost Graphs 1980-1987	30
30.8 Comparative Apartment Unit Cost Graphs 1980-1987	31
30.9 Comparative Cost Per Apartment Unit 1980-1987 Inflation Adjusted Dollars	32
30.10 Comparative Apartment Unit Cost Graphs 1980-1987 Inflation Adjusted Dollars	34
30.11 Trade Division Cost Summaries	35

Prepared by:

Helyar & Associates
#200 14727 - 87 Avenue
Edmonton, Alberta
T5R 4E5

Prepared for:

Alberta Municipal Affairs
Housing Division
Research and Development Section
2nd Floor, 9925 - 107 Street
Edmonton, Alberta
T5K 2H9

ISSN 0822-3920

APPENDIX

A1 Reduced Drawings: Single-Detached Dwelling
B1 Reduced Drawings: Walk-up Apartment
C1 Changes From 1984 Alberta House Cost Comparison Study

TABLE OF CONTENTS

~~~~~

Page No.

|                                                                                          |    |
|------------------------------------------------------------------------------------------|----|
| PREFACE .....                                                                            | 1  |
| 1.0 INTRODUCTION .....                                                                   | 2  |
| 1.1 Objectives.....                                                                      | 3  |
| 1.2 Scope of Work.....                                                                   | 3  |
| 1.3 Approach.....                                                                        | 5  |
| 1.4 Findings.....                                                                        | 7  |
| 2.0 SUMMARY OF FINDINGS FOR THE SINGLE-DETACHED DWELLING.....                            | 9  |
| SD.1 Total Building Costs.....                                                           | 10 |
| SD.2 Comparative Cost Ratios.....                                                        | 11 |
| SD.3 Comparative Cost Table 1986-1987.....                                               | 12 |
| SD.4 Comparative Building Cost Bar Chart 1986-1987.....                                  | 13 |
| SD.5 Comparative Total Building Costs 1980-1987.....                                     | 14 |
| SD.6 Comparative Cost Per Square Foot of Gross Floor Area 1980-1987.....                 | 15 |
| SD.7 Comparative Total Building Cost Graphs 1980-1987.....                               | 16 |
| SD.8 Comparative Total Building Costs 1980-1987 (Inflation Adjusted Dollars).....        | 18 |
| SD.9 Comparative Total Building Cost Graphs 1980-1987 (Inflation Adjusted Dollars).....  | 19 |
| SD.10 Trade Division Cost Summaries.....                                                 | 21 |
| 3.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT.....                                   | 23 |
| WA.1 Total Building Costs.....                                                           | 24 |
| WA.2 Comparative Cost Ratios.....                                                        | 25 |
| WA.3 Comparative Cost Tables 1986-1987.....                                              | 26 |
| WA.4 Comparative Building Cost Bar Chart 1986-1987.....                                  | 27 |
| WA.5 Comparative Total Building Costs 1980-1987.....                                     | 28 |
| WA.6 Comparative Cost Per Square Foot of Gross Floor Area 1980-1987.....                 | 29 |
| WA.7 Comparative Cost Per Apartment Unit 1980-1987.....                                  | 30 |
| WA.8 Comparative Apartment Unit Cost Graphs 1980-1987.....                               | 31 |
| WA.9 Comparative Cost Per Apartment Unit 1980-1987 (Inflation Adjusted Dollars).....     | 33 |
| WA.10 Comparative Apartment Unit Cost Graphs 1980-1987 (Inflation Adjusted Dollars)..... | 34 |
| WA.11 Trade Division Cost Summaries.....                                                 | 36 |
| APPENDIX                                                                                 |    |
| A) Reduced Drawings: Single-Detached Dwelling                                            |    |
| B) Reduced Drawings: Walk-Up Apartment                                                   |    |
| C) Changes from 1986 Alberta House Cost Comparison Study                                 |    |





## PREFACE

The main purpose of the 1987 Alberta House Cost Comparison Study is to provide estimates of the hard construction costs of a prototypical single-detached dwelling and a 24 unit walk-up apartment in nine urban centres in this Province.


The study also compares 1987 residential construction costs with those of previous years in the selected urban centres. Most emphasis is given to a comparison of 1987 with 1986 costs and the study includes an analysis of these differences.

The 1987 study has been carried out by Helyar & Associates and is documented in three reports:

1987 Alberta House Cost Comparison Study : Executive Summary  
1987 Alberta House Cost Comparison Study : Single-Detached Dwelling  
1987 Alberta House Cost Comparison Study : Walk-Up Apartment

Additional copies of any of these reports can be ordered from :

ALBERTA MUNICIPAL AFFAIRS  
Housing Division  
Research and Development Section  
2nd Floor, 9925 - 107 Street  
Edmonton, Alberta  
T5K 2H9



Digitized by the Internet Archive  
in 2015

<https://archive.org/details/albertahousecost1987>



## 1.0 INTRODUCTION

### 1.1 Objectives

The objectives of the 1987 Alberta House Cost Comparison Study were:

1. To determine 1987 hard residential construction costs in selected urban centres in Alberta.
2. To determine reasons for differences in residential construction costs in the selected centres.
3. To carry out detailed comparisons of 1987 residential construction costs with 1986 residential construction costs in the selected centres.
4. To determine and comment on residential construction cost trends over the last eight years in the selected centres.

## 1.0 INTRODUCTION

### 1.2 Scope of Work

The 1987 Alberta House Cost Comparison Study examines the construction costs of a typical single-detached dwelling and a 24 unit walk-up apartment building.

The study has been documented in three reports: an Executive Summary, a report on a typical single-detached dwelling and a report on a walk-up apartment. This report is the Executive Summary.

The study examines building construction costs in the following centres:

- |                   |                 |
|-------------------|-----------------|
| 1. Edmonton       | 6. Hinton       |
| 2. Calgary        | 7. Lethbridge   |
| 3. Red Deer       | 8. Medicine Hat |
| 4. Fort McMurray  | 9. Lloydminster |
| 5. Grande Prairie |                 |





## 1.0 INTRODUCTION

### 1.1 Objectives

The objectives of the 1987 Alberta House Cost Comparison Study were:

1. To determine 1987 hard residential construction costs in selected urban centres in Alberta.
2. To determine reasons for differences in residential construction costs in the selected centres.
3. To carry out detailed comparisons of 1987 residential construction costs with 1986 residential construction costs in the selected centres.
4. To determine and comment on residential construction cost trends over the last eight years in the selected centres.

### 1.2 Scope of Work

The 1987 Alberta House Cost Comparison Study examines the construction costs of a typical single-detached dwelling and a 24 unit walk-up apartment building.

The study has been documented in three reports : an Executive Summary, a report on a typical single-detached dwelling and a report on a walk-up apartment. This report is the Executive Summary.

The study examines building construction costs in the following centres:

- |                   |                 |
|-------------------|-----------------|
| 1. Edmonton       | 6. Hinton       |
| 2. Calgary        | 7. Lethbridge   |
| 3. Red Deer       | 8. Medicine Hat |
| 4. Fort McMurray  | 9. Lloydminster |
| 5. Grande Prairie |                 |





## 1.0 INTRODUCTION

### 1.2 Scope of Work (continued)

The cost analysis of both the single-detached dwelling and the walk-up apartment examines the building construction cost differences between each of the centres and highlights the reasons for those differences with reference to such factors as :

- a) material costs,
- b) labour costs, and
- c) building features and inclusions.

The cost estimates of the single-detached dwelling for each centre include all structural, finishing, mechanical, and electrical work as shown on the drawings and included in the specifications, and also includes allowance for site overhead. The cost estimates exclude the following items :

- a) cost of land and site clearance,
- b) site servicing costs,
- c) site development costs,
- d) design fees and expenses,
- e) legal fees and expenses, and
- f) marketing and real estate financing costs,
- g) appliances (fridge and stove), and
- h) general contractor's overhead and profit.





## 1.0 INTRODUCTION

### 1.2 Scope of Work (continued)

The cost estimates of the walk-up apartment for each centre include all structural, finishing, mechanical, and electrical work as shown on the drawings and included in the specifications, and also include allowances for site overhead and contractors' overhead and profit. The cost estimates exclude the following items:

- a) cost of land and site clearance,
- b) site servicing costs,
- c) site development costs,
- d) design fees and expenses,
- e) legal fees and expenses, and
- f) marketing and real estate financing costs,

### 1.3 Approach

The building construction costs are detailed in the report under the headings of labour and material/equipment costs. Labour rates used in the report are either those established by the trade union concerned, or by the market where trade union rates do not apply. In most cases, a realistic assessment of labour rates has been established by examining the circumstances of the particular sub-trade within the building industry. Material prices have been evaluated from building materials suppliers' lists. Average discounts are applied in order to establish a realistic market price for the materials to contractors.



## 1.0 INTRODUCTION

### 1.3 Approach (continued)

Quantities were rechecked as part of this year's study and have been adjusted. Quantities are quoted as net in place. Adjustments were also made to the unit rates to reflect factors for waste in material quantities.

Costs quoted for previous years derive from quantities identified in the surveys carried out in those years. Quantity adjustments this year with respect to the single family dwelling are not of significant magnitude to substantially affect the trend line from previous years. Analysis indicates that previous quantities were overestimated resulting in costs being overstated by about 1%. However quantity revisions to the walkup apartment are substantial, particularly with respect to lumber and drywall. Accordingly percentage changes and the trend line from previous years, years, particularly regarding these materials, should be used with caution. Analysis indicates that previous quantities were overestimated resulting in costs being overstated by about 5%. Specific changes are noted in Appendix C.

The cost data are assembled by sub-trade and presented in 22 trade categories for the single-detached dwelling and 25 trade categories for the walk-up apartment. The sub-trade operations are combined within each trade category in order to reflect current estimating practice within the industry. Site overhead and general contractor's office overhead and profit are shown separately for the walk-up apartment to indicate the actual site costs.

A computer program was developed in order to collate and present the cost data which were assembled for the nine centres. The quantities and trade descriptions were initially established for the prototypical house and apartment building. The cost data applicable to the relevant quantities and trade descriptions for each centre were then processed by computer.

The cost effects of market forces and building industry conditions are addressed in the 'Commentary' section of this report.





## 1.0 INTRODUCTION

### 1.4 Findings

Alberta's economy is experiencing slow to moderate growth as activity and optimism are climbing in the oil industry. Unemployment is down provincially and so are interest rates which may be causing more people to spend their dollars. Of course there are great variances from centre to centre within the Province. Housing starts in the Province increased, but again the variance between centres is great.

Costs for the prototypical single-detached house have increased by an average of 8.6% province-wide. The greatest increase was 18.0% in Calgary and the lowest was 5.4% in Lloydminster.

Costs for the apartment construction have increased in all centres by an average of 4.6% . The greatest increase was 8.5% in Calgary and the smallest increase was 3.1% in Hinton.

The graphic presentation of construction costs of the single-detached dwelling in Table SD.7 indicates that construction costs in all centres have moved above 1981 nominal dollars (from an average 1981 cost of \$ 42,304 to an average 1987 cost of \$ 45,675 or 8% more. However, expressed in terms of inflation adjusted 1987 dollars , costs have fallen dramatically from \$ 55,968 to \$ 45,675, an 18.4% drop.

The graphic presentation of apartment construction costs in Table WA.8 indicates that average costs are still less than 1981 costs expressed in nominal dollars (from \$31,529 in 1981 to \$30,490 in 1987 or 3.3% less). Expressed in inflation adjusted 1987 dollars, the total average costs are 26.9% less than the 1981 costs (i.e.; from \$41,713 in 1981 to \$30,490 in 1987).





## 1.0 INTRODUCTION

### 1.4 Findings (continued)

Labour costs for the single-detached dwelling increased substantially in both Calgary (25.8%) and in Red Deer (15.4%) as both centres have experienced shortages of skilled labour in relatively high demand marketplaces. Labour costs increased an average of 5.5% in the other centres.

Material prices for the single-detached dwelling and the walk-up apartment building have increased in all centres. Lumber, siding, and roofing increased most significantly over the last year. Most materials have increased in price due to greater demand caused by the highest housing starts in Canada in ten years. Most of the increase in starts occurred in central Canada and British Columbia. Concrete prices continue to vary considerably from centre to centre, due to demand, location and availability of aggregates and cement. In most centres the majority of price increases had to be passed on to the consumer as builders in previous years have absorbed increases to remain competitive in the marketplace.

No significant changes were observed as a result of building practice changes or changes in standard materials used by the majority of builders. Readers should note changes were made in the 1987 study as a result of adjustments in quantities, additions and deletions. These are included in Appendix B of the respective reports.



## 2.0 SUMMARY OF FINDINGS FOR THE SINGLE-DETACHED DWELLING





2.0 SUMMARY OF FINDINGS FOR THE SINGLE-DETACHED DWELLING

TABLE SD. 1 : Total Building Costs

| ITEM                 | EDMONTON    |       | CALGARY     |       | RED DEER    |       | FORT<br>McMURRAY |       | GRANDE<br>PRAIRIE |       | HINTON      |       | LETHBRIDGE  |       | MEDICINE<br>HAT |       | LLOYDMINSTER |       |
|----------------------|-------------|-------|-------------|-------|-------------|-------|------------------|-------|-------------------|-------|-------------|-------|-------------|-------|-----------------|-------|--------------|-------|
| ELEMENT              | TOTAL<br>\$ | %     | TOTAL<br>\$ | %     | TOTAL<br>\$ | %     | TOTAL<br>\$      | %     | TOTAL<br>\$       | %     | TOTAL<br>\$ | %     | TOTAL<br>\$ | %     | TOTAL<br>\$     | %     | TOTAL<br>\$  | %     |
| Labour               | 10,410      | 25.3  | 12,216      | 26.8  | 11,938      | 26.6  | 14,373           | 28.0  | 12,785            | 26.8  | 13,232      | 28.6  | 11,731      | 26.7  | 11,557          | 26.1  | 11,955       | 26.0  |
| Material             | 30,733      | 74.7  | 33,360      | 73.2  | 32,921      | 73.4  | 37,028           | 72.0  | 34,906            | 73.2  | 33,080      | 71.4  | 32,188      | 73.3  | 32,716          | 73.9  | 33,944       | 74.0  |
| Total 1987           | 41,142      | 100.0 | 45,575      | 100.0 | 44,859      | 100.0 | 51,402           | 100.0 | 47,692            | 100.0 | 46,317      | 100.0 | 43,920      | 100.0 | 44,271          | 100.0 | 45,898       | 100.0 |
| Cost per m2          | \$411.42    |       | \$455.75    |       | \$448.59    |       | \$514.02         |       | \$476.92          |       | \$463.17    |       | \$439.20    |       | \$442.71        |       | \$458.98     |       |
| Cost per SF          | \$38.22     |       | \$42.34     |       | \$41.68     |       | \$47.75          |       | \$44.31           |       | \$43.03     |       | \$40.80     |       | \$41.13         |       | \$42.64      |       |
| Total 1986           | \$38,797    |       | \$38,616    |       | \$39,829    |       | \$47,773         |       | \$44,948          |       | \$43,876    |       | \$40,766    |       | \$40,947        |       | \$43,546     |       |
| Changes From<br>1986 | 6.0%        |       | 18.0%       |       | 12.6%       |       | 7.6%             |       | 6.1%              |       | 5.6%        |       | 7.7%        |       | 8.1%            |       | 5.4%         |       |





2.0 SUMMARY OF FINDINGS FOR THE SINGLE-DETACHED DWELLING

TABLE SD. 2 : Comparative Cost Ratios \*

| LOCATION          | EDMONTON | CALGARY | RED DEER | FORT<br>McMURRAY | GRANDE<br>PRAIRIE | HINTON | LETHBRIDGE | MEDICINE<br>HAT | LLOYD-<br>MINSTER |
|-------------------|----------|---------|----------|------------------|-------------------|--------|------------|-----------------|-------------------|
| EDMONTON          | 1.00     | 1.11    | 1.09     | 1.25             | 1.16              | 1.13   | 1.07       | 1.08            | 1.12              |
| CALGARY           | 0.90     | 1.00    | 0.98     | 1.13             | 1.05              | 1.02   | 0.96       | 0.97            | 1.01              |
| RED DEER          | 0.92     | 1.02    | 1.00     | 1.15             | 1.06              | 1.03   | 0.98       | 0.99            | 1.02              |
| FORT<br>McMURRAY  | 0.80     | 0.89    | 0.87     | 1.00             | 0.93              | 0.90   | 0.85       | 0.86            | 0.89              |
| GRANDE<br>PRAIRIE | 0.86     | 0.96    | 0.94     | 1.08             | 1.00              | 0.97   | 0.92       | 0.93            | 0.96              |
| HINTON            | 0.89     | 0.98    | 0.97     | 1.11             | 1.03              | 1.00   | 0.95       | 0.96            | 0.99              |
| LETHBRIDGE        | 0.94     | 1.04    | 1.02     | 1.17             | 1.09              | 1.05   | 1.00       | 1.01            | 1.05              |
| MEDICINE<br>HAT   | 0.93     | 1.03    | 1.01     | 1.16             | 1.08              | 1.05   | 0.99       | 1.00            | 1.04              |
| LLOYD-<br>MINSTER | 0.90     | 0.99    | 0.98     | 1.12             | 1.04              | 1.01   | 0.96       | 0.96            | 1.00              |

\* Entries refer to the ratio of the price for a city in the top row of the table divided by a price for the city listed in the column. For example, Red Deer costs are 1.09 times Edmonton costs.

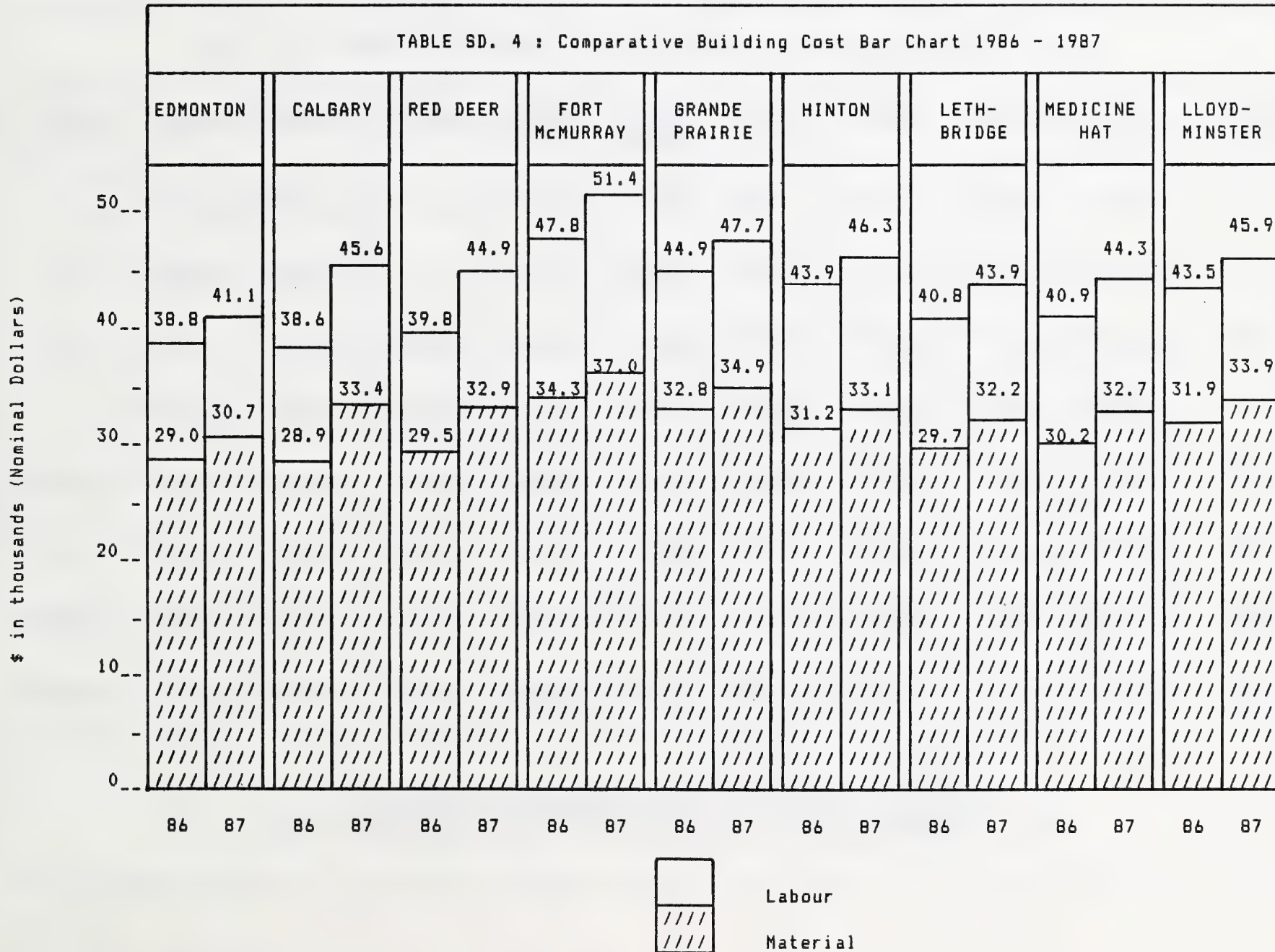
2.0 SUMMARY OF FINDINGS FOR THE SINGLE-DETACHED DWELLING

TABLE SD. 3 : Comparative Cost Table 1986 - 1987

| LOCATION     | EDMONTON | CALGARY  | RED DEER | FORT<br>McMURRAY | GRANDE<br>PRAIRIE | HINTON   | LETHBRIDGE | MEDICINE<br>HAT | LLOYD-<br>MINSTER |
|--------------|----------|----------|----------|------------------|-------------------|----------|------------|-----------------|-------------------|
| Labour Cost  |          |          |          |                  |                   |          |            |                 |                   |
| 1987         | \$10,410 | \$12,216 | \$11,938 | \$14,373         | \$12,785          | \$13,232 | \$11,731   | \$11,557        | \$11,955          |
| 1986         | \$9,782  | \$9,713  | \$10,347 | \$13,460         | \$12,156          | \$12,719 | \$11,063   | \$10,740        | \$11,624          |
| Difference   | 628      | 2503     | 1591     | 913              | 629               | 513      | 668        | 817             | 331               |
| % Difference | 6.4%     | 25.8%    | 15.4%    | 6.8%             | 5.2%              | 4.0%     | 6.0%       | 7.6%            | 2.8%              |
| Mat'l Cost   |          |          |          |                  |                   |          |            |                 |                   |
| 1987         | \$30,733 | \$33,360 | \$32,921 | \$37,028         | \$34,906          | \$33,080 | \$32,188   | \$32,716        | \$33,944          |
| 1986         | \$29,014 | \$28,903 | \$29,482 | \$34,313         | \$32,791          | \$31,157 | \$29,703   | \$30,207        | \$31,921          |
| Difference   | 1719     | 4457     | 3439     | 2715             | 2115              | 1923     | 2485       | 2509            | 2023              |
| % Difference | 5.9%     | 15.4%    | 11.7%    | 7.9%             | 6.4%              | 6.2%     | 8.4%       | 8.3%            | 6.3%              |
| Total Cost   |          |          |          |                  |                   |          |            |                 |                   |
| 1987         | \$41,142 | \$45,575 | \$44,859 | \$51,402         | \$47,692          | \$46,317 | \$43,920   | \$44,271        | \$45,898          |
| 1986         | \$38,797 | \$38,616 | \$39,829 | \$47,773         | \$44,948          | \$43,876 | \$40,766   | \$40,947        | \$43,546          |
| Difference   | 2345     | 6959     | 5030     | 3629             | 2744              | 2441     | 3154       | 3324            | 2352              |
| % Difference | 6.0%     | 18.0%    | 12.6%    | 7.6%             | 6.1%              | 5.6%     | 7.7%       | 8.1%            | 5.4%              |

2.0 SUMMARY OF FINDINGS FOR THE SINGLE - DETACHED DWELLING

TABLE SD. 4 : Comparative Building Cost Bar Chart 1986 - 1987



2.0 SUMMARY OF FINDINGS FOR THE SINGLE-DETACHED DWELLING

TABLE SD. 5 : Comparative Total Building Costs 1980 -1987 \*

| YEAR | AVERAGE  | EDMONTON | CALGARY  | RED DEER | FORT<br>McMURRAY | GRANDE<br>PRAIRIE | **<br>HINTON | LETHBRIDGE | MEDICINE<br>HAT | ***<br>LLOYD-<br>MINSTER |
|------|----------|----------|----------|----------|------------------|-------------------|--------------|------------|-----------------|--------------------------|
| 1980 | \$38,991 | \$36,239 | \$34,964 | \$37,206 | \$45,747         | \$42,143          | -            | \$38,055   | \$38,586        | -                        |
| 1981 | \$42,304 | \$39,925 | \$39,578 | \$40,159 | \$48,339         | \$44,655          | -            | \$41,910   | \$41,561        | -                        |
| 1982 | \$41,029 | \$37,732 | \$36,894 | \$40,432 | \$46,257         | \$40,814          | \$42,453     | \$41,546   | \$42,102        | -                        |
| 1983 | \$38,565 | \$35,723 | \$34,953 | \$36,941 | \$43,021         | \$40,449          | \$39,676     | \$38,427   | \$39,326        | -                        |
| 1984 | \$39,757 | \$35,764 | \$35,529 | \$36,540 | \$45,129         | \$42,601          | \$41,421     | \$38,733   | \$39,743        | \$42,351                 |
| 1985 | \$40,528 | \$37,269 | \$37,341 | \$38,377 | \$45,564         | \$42,785          | \$41,660     | \$39,485   | \$39,521        | \$42,749                 |
| 1986 | \$42,122 | \$38,797 | \$38,616 | \$39,829 | \$47,773         | \$44,948          | \$43,876     | \$40,766   | \$40,947        | \$43,546                 |
| 1987 | \$45,675 | \$41,142 | \$45,575 | \$44,859 | \$51,402         | \$47,692          | \$46,317     | \$43,920   | \$44,271        | \$45,898                 |

Notes : \* Expressed in nominal dollars  
 \*\* Hinton was not included in the 1980 and 1981 studies  
 \*\*\* Lloydminster was not included in the 1980 through 1983 studies



2.0 SUMMARY OF FINDINGS FOR THE SINGLE-DETACHED DWELLING

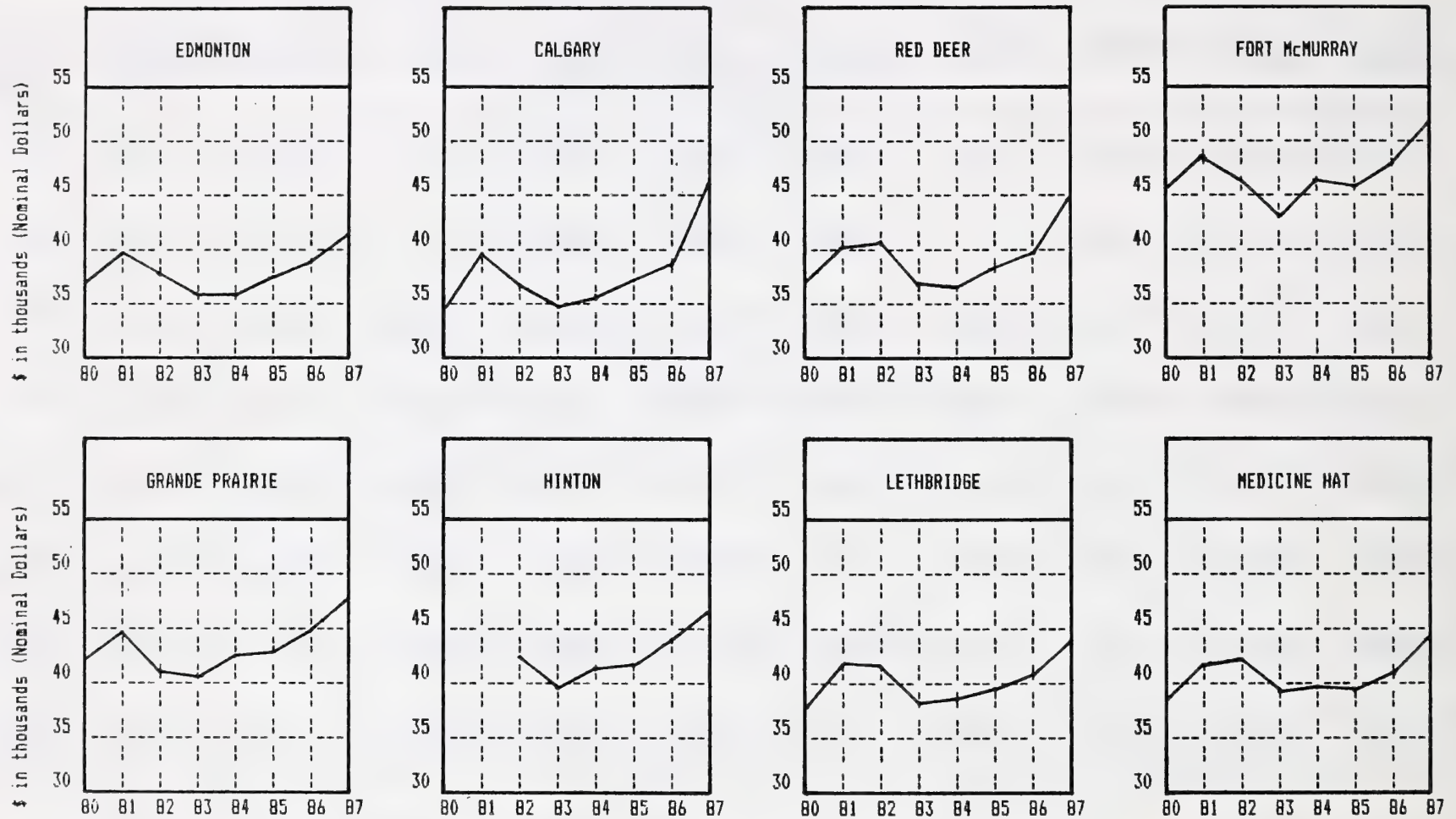
TABLE SD. 6 : Comparative Cost per Square Foot of Gross Floor Area 1980 - 1987 \*

| YEAR | AVERAGE | EDMONTON | CALGARY | RED DEER | FORT<br>McMURRAY | GRANDE<br>PRAIRIE | **<br>HINTON | LETHBRIDGE | MEDICINE<br>HAT | ***<br>LLOYD-<br>MINSTER |
|------|---------|----------|---------|----------|------------------|-------------------|--------------|------------|-----------------|--------------------------|
| 1980 | \$36.22 | \$33.66  | \$32.48 | \$34.56  | \$42.50          | \$39.15           | -            | \$35.35    | \$35.85         | -                        |
| 1981 | \$39.30 | \$37.09  | \$36.77 | \$37.30  | \$44.91          | \$41.48           | -            | \$38.93    | \$38.61         | -                        |
| 1982 | \$38.10 | \$35.05  | \$34.27 | \$37.56  | \$42.97          | \$37.82           | \$39.44      | \$38.60    | \$39.11         | -                        |
| 1983 | \$35.83 | \$33.19  | \$32.47 | \$34.32  | \$39.97          | \$37.58           | \$36.86      | \$35.70    | \$36.53         | -                        |
| 1984 | \$36.95 | \$33.24  | \$33.02 | \$33.96  | \$41.94          | \$39.59           | \$38.50      | \$36.00    | \$36.94         | \$39.36                  |
| 1985 | \$37.65 | \$34.62  | \$34.69 | \$35.65  | \$42.33          | \$39.75           | \$38.70      | \$36.68    | \$36.72         | \$39.71                  |
| 1986 | \$39.13 | \$36.04  | \$35.88 | \$37.00  | \$44.38          | \$41.76           | \$40.76      | \$37.87    | \$38.04         | \$40.46                  |
| 1987 | \$42.43 | \$38.22  | \$42.34 | \$41.68  | \$47.75          | \$44.31           | \$43.03      | \$40.80    | \$41.13         | \$42.64                  |

Notes : \* Expressed in nominal dollars  
 \*\* Hinton was not included in the 1980 and 1981 studies  
 \*\*\* Lloydminster was not included in the 1980 through 1983 studies

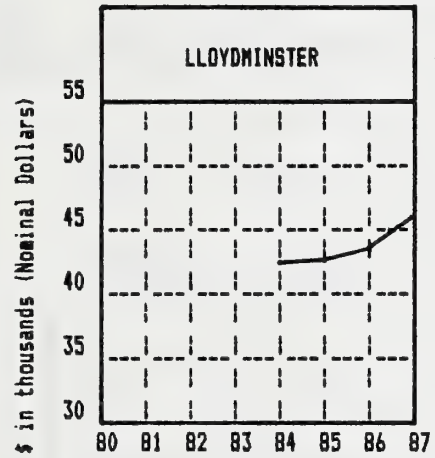
2.0 SUMMARY OF FINDINGS FOR THE SINGLE-DETACHED DWELLING

TABLE SD. 7 : Comparative Total Cost Graphs 1980 -1987



2.0 SUMMARY OF FINDINGS FOR THE SINGLE-DETACHED DWELLING

TABLE SD. 7 : Comparative Total Cost Graphs 1980 -1987 (Continued)



2.0 SUMMARY OF FINDINGS FOR THE SINGLE-DETACHED DWELLING

TABLE SD. B : Comparative Total Building Costs 1980 -1987 (Inflation Adjusted Dollars) \*

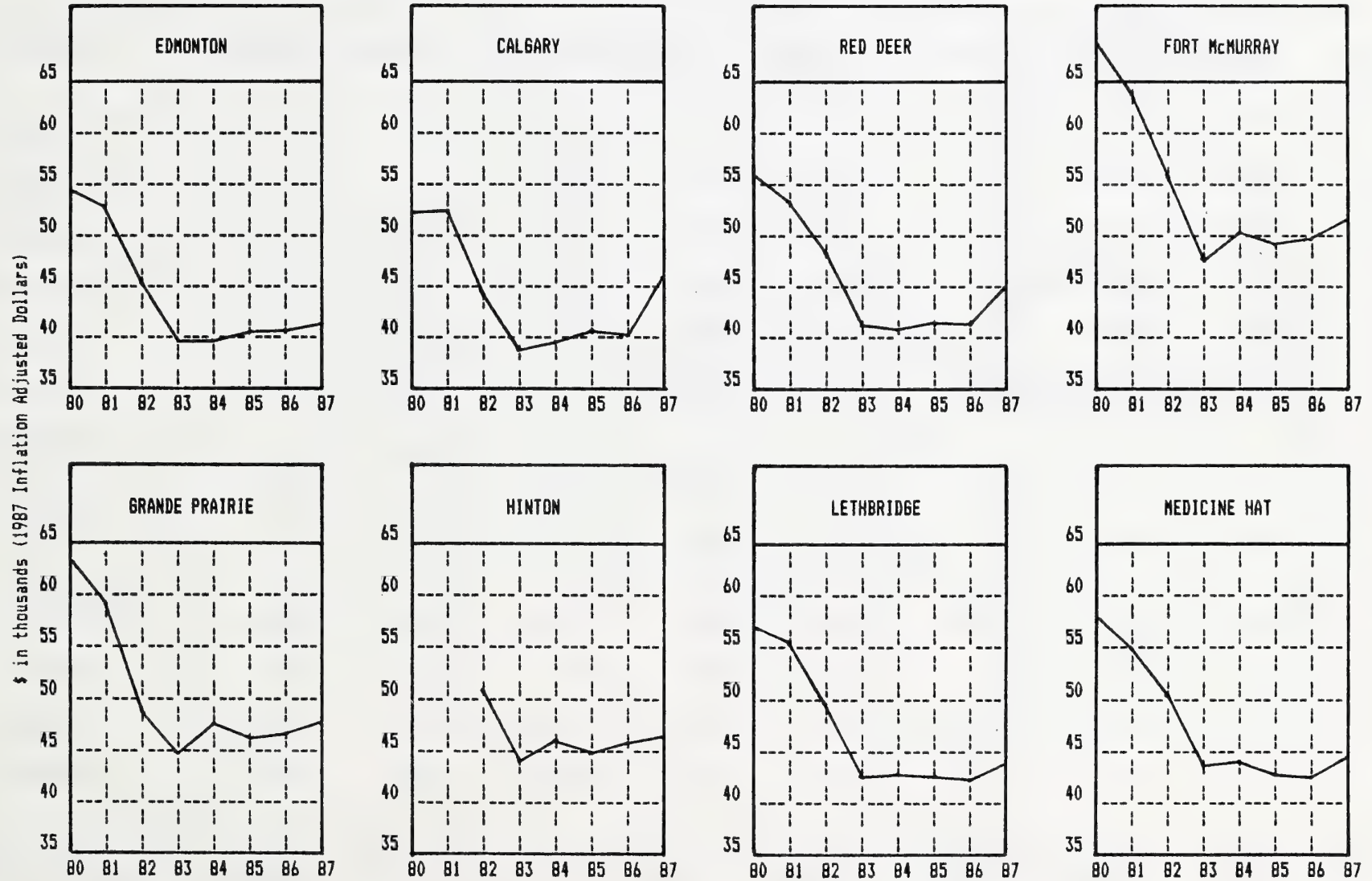
| YEAR | AVERAGE  | EDMONTON | CALGARY  | RED DEER | FORT<br>McMURRAY | GRANDE<br>PRAIRIE | **<br>HINTON | LETHBRIDGE | MEDICINE<br>HAT | ***<br>LLOYD-<br>MINSTER |
|------|----------|----------|----------|----------|------------------|-------------------|--------------|------------|-----------------|--------------------------|
| 1980 | \$58,370 | \$54,250 | \$52,341 | \$55,697 | \$68,483         | \$63,088          | -            | \$56,968   | \$57,763        | -                        |
| 1981 | \$55,968 | \$52,821 | \$52,362 | \$53,130 | \$63,952         | \$59,079          | -            | \$55,447   | \$54,985        | -                        |
| 1982 | \$49,111 | \$45,165 | \$44,162 | \$48,397 | \$55,370         | \$48,854          | \$50,816     | \$49,731   | \$50,396        | -                        |
| 1983 | \$42,807 | \$39,653 | \$38,798 | \$41,005 | \$47,753         | \$44,898          | \$44,040     | \$42,654   | \$43,652        | -                        |
| 1984 | \$44,130 | \$39,698 | \$39,437 | \$40,559 | \$50,093         | \$47,287          | \$45,977     | \$42,994   | \$44,115        | \$47,010                 |
| 1985 | \$43,770 | \$40,251 | \$40,328 | \$41,447 | \$49,209         | \$46,208          | \$44,993     | \$42,644   | \$42,683        | \$46,169                 |
| 1986 | \$43,765 | \$40,310 | \$40,122 | \$41,382 | \$49,636         | \$46,701          | \$45,587     | \$42,356   | \$42,544        | \$45,244                 |
| 1987 | \$45,675 | \$41,142 | \$45,575 | \$44,859 | \$51,402         | \$47,692          | \$46,317     | \$43,920   | \$44,271        | \$45,898                 |

- Notes : \*
- Expressed in 1987 Inflation adjusted dollars
  - Inflation adjustments have been based on the Consumer Price Index for Edmonton and Calgary.
- \*\* Hinton was not included in the 1980 and 1981 studies
- \*\*\* Lloydminster was not included in the 1980 through 1983 studies



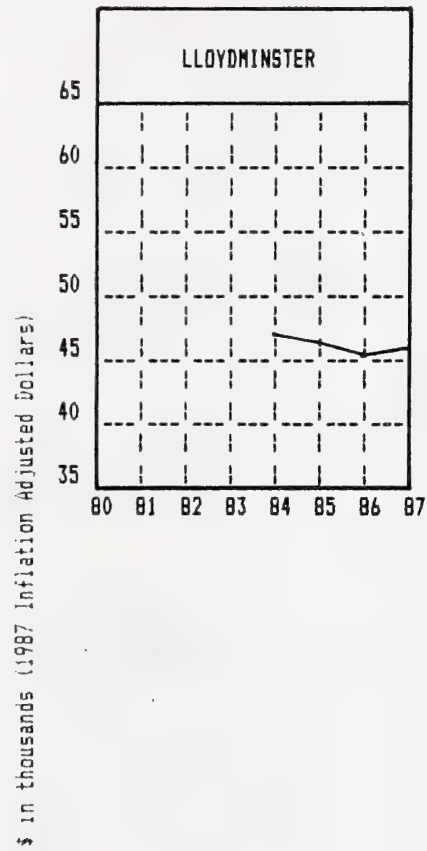
2.0 SUMMARY OF FINDINGS FOR THE SINGLE-DETACHED DWELLING

TABLE SD. 9 : Comparative Total Building Cost Graphs 1980 -1987 (Inflation Adjusted Dollars)



2.0 SUMMARY OF FINDINGS FOR THE SINGLE-DETACHED DWELLING

TABLE SD. 9 : Comparative Total Building Cost Graphs 1980 -1987 (Inflation Adjusted Dollars)



2.0 SUMMARY OF FINDINGS FOR THE SINGLE-DETACHED DWELLING

TABLE SD. 10 : Trade Division Cost Summaries

| LOCATION                  | EDMONTON | CALGARY  | RED DEER | FORT<br>McMURRAY | GRANDE<br>PRAIRIE | HINTON   | LETHBRIDGE | MEDICINE<br>HAT | LLOYD-<br>MINSTER |
|---------------------------|----------|----------|----------|------------------|-------------------|----------|------------|-----------------|-------------------|
| Divisions                 |          |          |          |                  |                   |          |            |                 |                   |
| 1. Excavation             | 1,797    | 2,453    | 2,178    | 2,443            | 2,147             | 1,869    | 2,328      | 2,087           | 2,282             |
| 2. Concrete               | 5,327    | 5,743    | 5,712    | 7,221            | 6,541             | 6,919    | 5,321      | 5,817           | 5,799             |
| 3. Dampproofing           | 350      | 451      | 471      | 601              | 551               | 448      | 454        | 435             | 433               |
| 4. Siding                 | 2,990    | 3,000    | 3,341    | 3,556            | 3,256             | 2,935    | 3,025      | 2,760           | 3,216             |
| 5. Roofing                | 1,137    | 1,222    | 1,204    | 1,164            | 1,158             | 1,093    | 1,131      | 1,177           | 1,047             |
| 6. Rough<br>Carpentry     | 7,282    | 8,081    | 7,626    | 9,003            | 8,354             | 7,646    | 7,613      | 7,171           | 7,233             |
| 7. Finish<br>Carpentry    | 854      | 967      | 924      | 1,006            | 967               | 871      | 887        | 887             | 895               |
| 8. Windows and<br>Glazing | 1,767    | 1,870    | 1,868    | 2,000            | 1,931             | 1,858    | 1,823      | 1,860           | 1,868             |
| 9. Sealants               | 56       | 76       | 65       | 68               | 68                | 61       | 55         | 59              | 60                |
| 10. Doors                 | 1,070    | 1,117    | 1,116    | 1,251            | 1,217             | 1,208    | 1,103      | 1,100           | 1,194             |
| 11. Hardware              | 186      | 209      | 201      | 209              | 197               | 196      | 189        | 196             | 194               |
| SUB - TOTAL               | \$22,816 | \$25,189 | \$24,706 | \$28,522         | \$26,387          | \$25,104 | \$23,929   | \$23,549        | \$24,221          |

2.0 SUMMARY OF FINDINGS FOR THE SINGLE-DETACHED DWELLING

TABLE SD. 10 : Trade Division Cost Summaries (cont'd)

| LOCATION               | EDMONTON | CALGARY  | RED DEER | FORT<br>McMURRAY | GRANDE<br>PRAIRIE | HINTON   | LETHBRIDGE | MEDICINE<br>HAT | LLOYD-<br>MINSTER |
|------------------------|----------|----------|----------|------------------|-------------------|----------|------------|-----------------|-------------------|
| Divisions              |          |          |          |                  |                   |          |            |                 |                   |
| 12. Ceramic<br>Tiling  | 190      | 199      | 197      | 239              | 229               | 215      | 220        | 229             | 272               |
| 13. Wallboard          | 3,669    | 4,279    | 3,964    | 4,947            | 4,240             | 4,314    | 3,920      | 4,016           | 4,696             |
| 14. Flooring           | 1,421    | 1,536    | 1,546    | 1,665            | 1,620             | 1,527    | 1,475      | 1,513           | 1,541             |
| 15. Painting           | 1,346    | 1,527    | 1,536    | 1,722            | 1,615             | 1,620    | 1,619      | 1,659           | 1,633             |
| 16. Fitting            | 2,501    | 2,704    | 2,690    | 2,946            | 2,746             | 2,611    | 2,823      | 2,889           | 2,844             |
| 17. Specialties        | 179      | 199      | 194      | 216              | 214               | 189      | 187        | 188             | 193               |
| 18. Appliances         | 105      | 127      | 111      | 131              | 129               | 117      | 122        | 113             | 123               |
| 19. Plumbing           | 2,400    | 2,800    | 2,595    | 2,940            | 2,893             | 2,660    | 2,475      | 2,525           | 2,425             |
| 20. Heating            | 1,600    | 1,750    | 1,895    | 2,350            | 2,150             | 2,185    | 1,600      | 1,875           | 2,300             |
| 21. Electrical         | 1,615    | 1,965    | 2,125    | 2,424            | 2,169             | 2,475    | 2,250      | 2,415           | 2,350             |
| 22. Site Over-<br>head | 3,300    | 3,300    | 3,300    | 3,300            | 3,300             | 3,300    | 3,300      | 3,300           | 3,300             |
| TOTAL                  | \$41,142 | \$45,575 | \$44,859 | \$51,402         | \$47,692          | \$46,317 | \$43,920   | \$44,271        | \$45,898          |



### 3.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

3.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

TABLE WA. 1 : Total Building Costs

| ITEM                   | EDMONTON    |      | CALGARY     |      | RED DEER    |      | FORT McMURRAY |      | GRANDE PRAIRIE |      | HINTON      |      | LETHBRIDGE  |      | MEDICINE HAT |      | LLOYDMINSTER |      |
|------------------------|-------------|------|-------------|------|-------------|------|---------------|------|----------------|------|-------------|------|-------------|------|--------------|------|--------------|------|
| ELEMENT                | TOTAL<br>\$ | %    | TOTAL<br>\$ | %    | TOTAL<br>\$ | %    | TOTAL<br>\$   | %    | TOTAL<br>\$    | %    | TOTAL<br>\$ | %    | TOTAL<br>\$ | %    | TOTAL<br>\$  | %    | TOTAL<br>\$  | %    |
| Labour                 | 233,501     | 34.7 | 248,920     | 35.4 | 254,392     | 35.7 | 298,290       | 37.0 | 280,659        | 36.5 | 276,591     | 36.7 | 256,965     | 36.3 | 249,456      | 35.1 | 270,353      | 35.8 |
| Material               | 438,866     | 65.3 | 453,305     | 64.6 | 457,300     | 64.3 | 507,587       | 63.0 | 487,795        | 63.5 | 477,172     | 63.3 | 450,059     | 63.7 | 460,288      | 64.9 | 484,347      | 64.2 |
| Total 1987             | 672,366     |      | 702,224     |      | 711,691     |      | 805,879       |      | 768,453        |      | 753,762     |      | 707,024     |      | 709,744      |      | 754,699      |      |
| Cost per m2            | \$362.07    |      | \$378.15    |      | \$383.25    |      | \$433.97      |      | \$413.81       |      | \$405.90    |      | \$380.73    |      | \$382.20     |      | \$406.41     |      |
| Cost per SF            | \$33.64     |      | \$35.13     |      | \$35.60     |      | \$40.32       |      | \$38.44        |      | \$37.71     |      | \$35.37     |      | \$35.51      |      | \$37.76      |      |
| Total per Apt. 1987 \$ | \$28,015    |      | \$29,259    |      | \$29,654    |      | \$33,578      |      | \$32,019       |      | \$31,407    |      | \$29,459    |      | \$29,573     |      | \$31,446     |      |
| Total 1986 \$          | 648,534     |      | 647,135     |      | 665,963     |      | 778,075       |      | 742,644        |      | 731,043     |      | 679,312     |      | 676,195      |      | 730,802      |      |
| Total per Apt. 1986 \$ | 27,022      |      | 26,964      |      | 27,748      |      | 32,420        |      | 30,944         |      | 30,460      |      | 28,305      |      | 28,175       |      | 30,450       |      |
| Changes From 1986      | 3.7%        |      | 8.5%        |      | 6.9%        |      | 3.6%          |      | 3.5%           |      | 3.1%        |      | 4.1%        |      | 5.0%         |      | 3.3%         |      |

3.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

TABLE WA. 2 : Comparative Cost Ratios \*

| LOCATION          | EDMONTON | CALGARY | RED DEER | FORT<br>McMURRAY | GRANDE<br>PRAIRIE | HINTON | LETHBRIDGE | MEDICINE<br>HAT | LLOYD-<br>MINSTER |
|-------------------|----------|---------|----------|------------------|-------------------|--------|------------|-----------------|-------------------|
| EDMONTON          | 1.00     | 1.04    | 1.06     | 1.20             | 1.14              | 1.12   | 1.05       | 1.06            | 1.12              |
| CALGARY           | 0.96     | 1.00    | 1.01     | 1.15             | 1.09              | 1.07   | 1.01       | 1.01            | 1.07              |
| RED DEER          | 0.94     | 0.99    | 1.00     | 1.13             | 1.08              | 1.06   | 0.99       | 1.00            | 1.06              |
| FORT<br>McMURRAY  | 0.83     | 0.87    | 0.88     | 1.00             | 0.95              | 0.94   | 0.88       | 0.88            | 0.94              |
| GRANDE<br>PRAIRIE | 0.87     | 0.91    | 0.93     | 1.05             | 1.00              | 0.98   | 0.92       | 0.92            | 0.98              |
| HINTON            | 0.89     | 0.93    | 0.94     | 1.07             | 1.02              | 1.00   | 0.94       | 0.94            | 1.00              |
| LETHBRIDGE        | 0.95     | 0.99    | 1.01     | 1.14             | 1.09              | 1.07   | 1.00       | 1.00            | 1.07              |
| MEDICINE<br>HAT   | 0.95     | 0.99    | 1.00     | 1.14             | 1.08              | 1.06   | 1.00       | 1.00            | 1.06              |
| LLOYD-<br>MINSTER | 0.89     | 0.93    | 0.94     | 1.07             | 1.02              | 1.00   | 0.94       | 0.94            | 1.00              |

\* Entries refer to the ratio of the price for a city in the top row of the table divided by a price for the city listed in the column. For example, Red Deer costs are 1.06 times Edmonton costs.

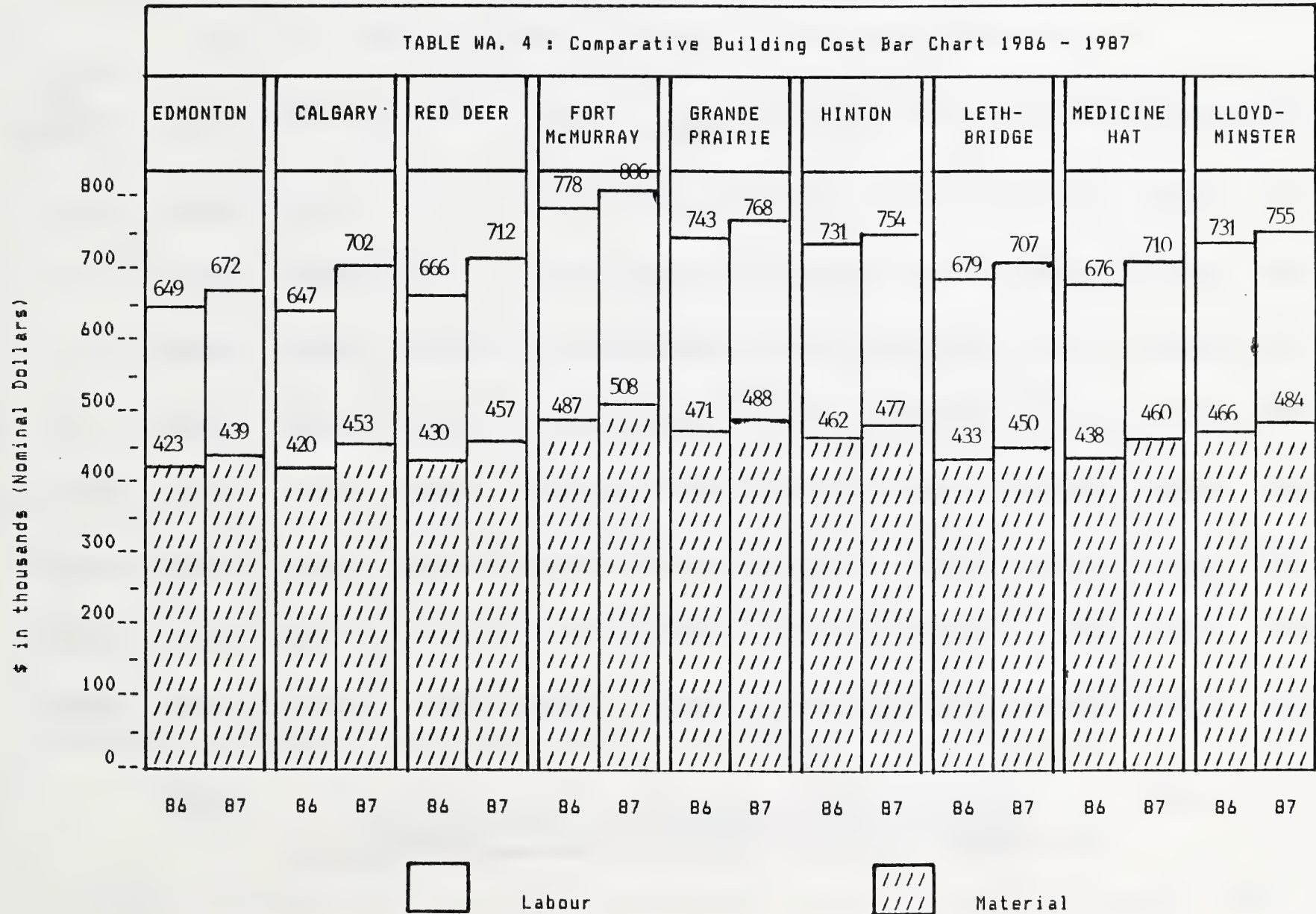
3.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

TABLE WA. 3 : Comparative Cost Table 1986 - 1987

| LOCATION     | EDMONTON  | CALGARY   | RED DEER  | FORT<br>McMURRAY | GRANDE<br>PRAIRIE | HINTON    | LETHBRIDGE | MEDICINE<br>HAT | LLOYD-<br>MINSTER |
|--------------|-----------|-----------|-----------|------------------|-------------------|-----------|------------|-----------------|-------------------|
| Labour Cost  |           |           |           |                  |                   |           |            |                 |                   |
| 1987         | \$233,501 | \$248,920 | \$254,392 | \$298,290        | \$280,659         | \$276,591 | \$256,965  | \$249,456       | \$270,353         |
| 1986         | \$225,545 | \$227,234 | \$236,381 | \$291,035        | \$271,867         | \$269,016 | \$246,730  | \$237,975       | \$264,811         |
| Difference   | \$7,956   | \$21,686  | \$18,011  | \$7,255          | \$8,792           | \$7,575   | \$10,235   | \$11,481        | \$5,542           |
| % Difference | 3.5%      | 9.5%      | 7.6%      | 2.5%             | 3.2%              | 2.8%      | 4.1%       | 4.8%            | 2.1%              |
| Mat'l Cost   |           |           |           |                  |                   |           |            |                 |                   |
| 1987         | \$438,866 | \$453,305 | \$457,300 | \$507,587        | \$487,795         | \$477,172 | \$450,059  | \$460,288       | \$484,347         |
| 1986         | \$422,989 | \$419,901 | \$429,582 | \$487,040        | \$470,777         | \$462,027 | \$432,581  | \$438,220       | \$465,990         |
| Difference   | \$15,877  | \$33,404  | \$27,718  | \$20,547         | \$17,018          | \$15,145  | \$17,478   | \$22,068        | \$18,357          |
| % Difference | 3.8%      | 8.0%      | 6.5%      | 4.2%             | 3.6%              | 3.3%      | 4.0%       | 5.0%            | 3.9%              |
| Total Cost   |           |           |           |                  |                   |           |            |                 |                   |
| 1987         | \$672,366 | \$702,224 | \$711,691 | \$805,879        | \$768,453         | \$753,762 | \$707,024  | \$709,744       | \$754,699         |
| 1986         | \$648,534 | \$647,135 | \$665,963 | \$778,075        | \$742,644         | \$731,043 | \$679,312  | \$676,195       | \$730,802         |
| Difference   | \$23,832  | \$55,089  | \$45,728  | \$27,804         | \$25,809          | \$22,719  | \$27,712   | \$33,549        | \$23,897          |
| % Difference | 3.7%      | 8.5%      | 6.9%      | 3.6%             | 3.5%              | 3.1%      | 4.1%       | 5.0%            | 3.3%              |



3.0 SUMMARY OF FINDINGS FOR THE WALK - UP APARTMENT



3.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

TABLE WA. 5 : Comparative Total Building Costs 1980 -1987 \*

| YEAR | AVERAGE   | EDMONTON  | CALGARY   | RED DEER  | FORT<br>McMURRAY | GRANDE<br>PRAIRIE | **<br>HINTON | LETHBRIDGE | MEDICINE<br>HAT | ***<br>LLOYD-<br>MINSTER |
|------|-----------|-----------|-----------|-----------|------------------|-------------------|--------------|------------|-----------------|--------------------------|
| 1980 | \$709,337 | \$660,295 | \$670,183 | \$685,282 | \$811,898        | \$736,435         | -            | \$703,808  | \$697,459       | -                        |
| 1981 | \$756,703 | \$714,492 | \$719,003 | \$733,211 | \$861,728        | \$784,409         | -            | \$740,084  | \$743,992       | -                        |
| 1982 | \$712,232 | \$665,273 | \$627,844 | \$710,485 | \$805,134        | \$700,436         | \$744,686    | \$720,280  | \$723,716       | -                        |
| 1983 | \$644,459 | \$603,046 | \$592,174 | \$623,852 | \$712,262        | \$669,574         | \$674,046    | \$632,872  | \$647,845       | -                        |
| 1984 | \$658,084 | \$600,039 | \$591,861 | \$624,342 | \$731,995        | \$694,794         | \$693,688    | \$632,121  | \$652,014       | \$701,901                |
| 1985 | \$669,882 | \$625,974 | \$617,049 | \$644,466 | \$734,420        | \$695,480         | \$690,526    | \$651,143  | \$655,347       | \$714,537                |
| 1986 | \$699,967 | \$648,534 | \$647,135 | \$665,963 | \$778,075        | \$742,644         | \$731,043    | \$679,312  | \$676,195       | \$730,802                |
| 1987 | \$731,760 | \$672,366 | \$702,224 | \$711,691 | \$805,879        | \$768,453         | \$753,762    | \$707,024  | \$709,744       | \$754,699                |

Notes : \* Expressed in nominal dollars  
 \*\* Hinton was not included in the 1980 and 1981 studies  
 \*\*\* Lloydminster was not included in the 1980 through 1983 studies

3.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

TABLE WA. 6 : Comparative Cost per Square Foot of Gross Floor Area 1980 -1987 \*

| YEAR | AVERAGE | EDMONTON | CALGARY | RED DEER | FORT<br>McMURRAY | GRANDE<br>PRAIRIE | **<br>HINTON | LETHBRIDGE | MEDICINE<br>HAT | ***<br>LLOYD-<br>MINSTER |
|------|---------|----------|---------|----------|------------------|-------------------|--------------|------------|-----------------|--------------------------|
| 1980 | \$35.48 | \$33.04  | \$33.52 | \$34.28  | \$40.61          | \$36.84           | -            | \$35.20    | \$34.89         | -                        |
| 1981 | \$37.86 | \$35.75  | \$35.97 | \$36.68  | \$43.11          | \$39.24           | -            | \$37.03    | \$37.22         | -                        |
| 1982 | \$35.63 | \$33.28  | \$31.41 | \$35.54  | \$40.28          | \$35.04           | \$37.26      | \$36.03    | \$36.21         | -                        |
| 1983 | \$32.24 | \$30.17  | \$29.63 | \$31.21  | \$35.63          | \$33.50           | \$33.72      | \$31.66    | \$32.41         | -                        |
| 1984 | \$32.92 | \$30.02  | \$29.61 | \$31.23  | \$36.62          | \$34.76           | \$34.70      | \$31.62    | \$32.62         | \$35.11                  |
| 1985 | \$33.51 | \$31.32  | \$30.87 | \$32.24  | \$36.74          | \$34.79           | \$34.55      | \$32.58    | \$32.79         | \$35.75                  |
| 1986 | \$35.02 | \$32.44  | \$32.37 | \$33.32  | \$38.93          | \$37.15           | \$36.57      | \$33.98    | \$33.83         | \$36.56                  |
| 1987 | \$36.61 | \$33.64  | \$35.13 | \$35.60  | \$40.32          | \$38.44           | \$37.71      | \$35.37    | \$35.51         | \$37.76                  |

Notes : \* Expressed in nominal dollars  
 \*\* Hinton was not included in the 1980 and 1981 studies  
 \*\*\* Lloydminster was not included in the 1980 through 1983 studies

3.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

TABLE WA. 7 : Comparative Cost per Apartment Unit 1980 -1987 \*

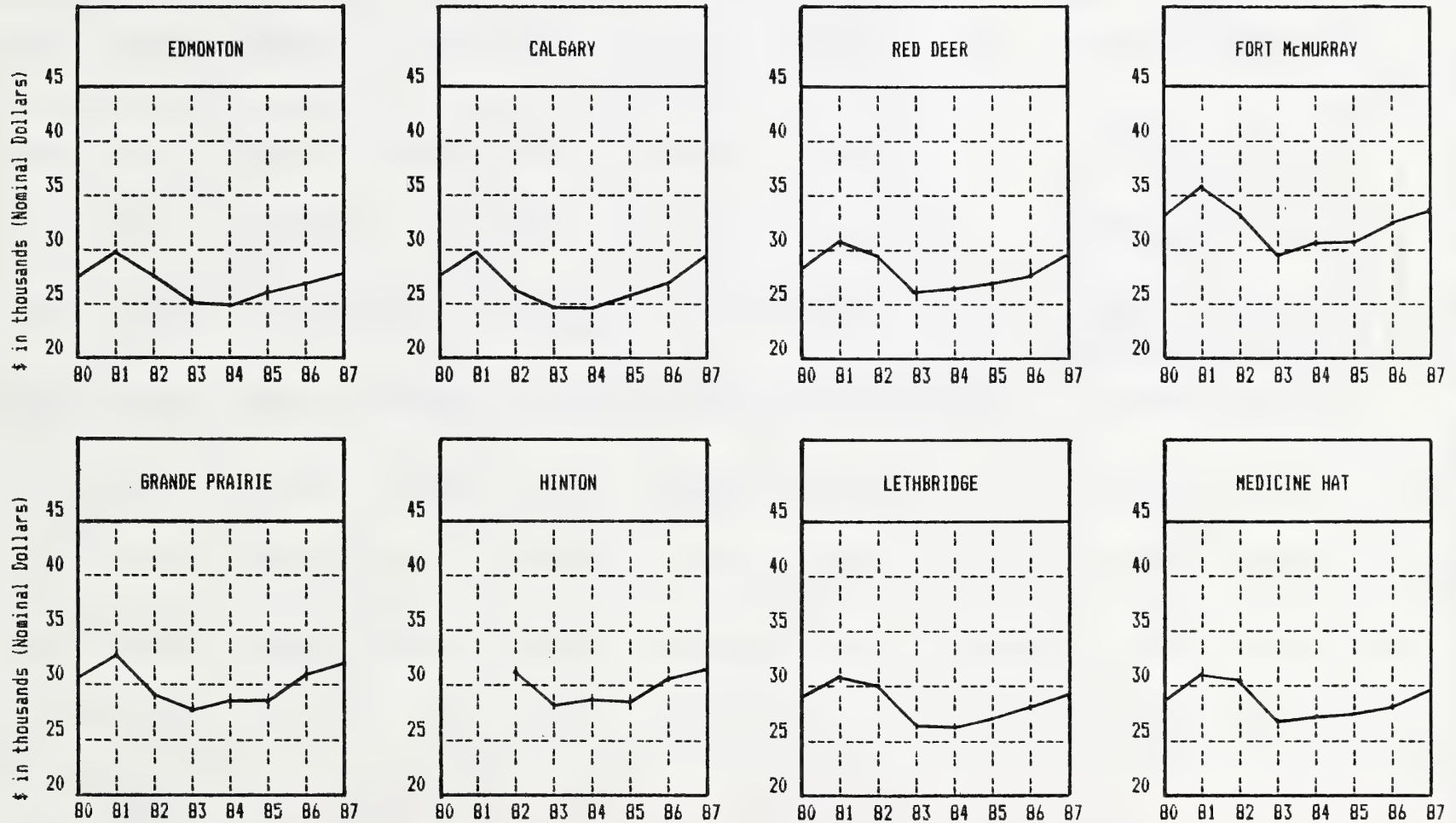
| YEAR | AVERAGE  | EDMONTON | CALGARY  | RED DEER | FORT<br>McMURRAY | GRANDE<br>PRAIRIE | **<br>HINTON | LETHBRIDGE | MEDICINE<br>HAT | ***<br>LLOYD-<br>MINSTER |
|------|----------|----------|----------|----------|------------------|-------------------|--------------|------------|-----------------|--------------------------|
| 1980 | \$29,555 | \$27,512 | \$27,924 | \$28,553 | \$33,829         | \$30,684          | -            | \$29,325   | \$29,061        | -                        |
| 1981 | \$31,529 | \$29,771 | \$29,958 | \$30,550 | \$35,905         | \$32,684          | -            | \$30,837   | \$31,000        | -                        |
| 1982 | \$29,677 | \$27,720 | \$26,160 | \$29,604 | \$33,547         | \$29,185          | \$31,029     | \$30,012   | \$30,155        | -                        |
| 1983 | \$26,853 | \$25,127 | \$24,674 | \$25,994 | \$29,678         | \$27,899          | \$28,085     | \$26,370   | \$26,994        | -                        |
| 1984 | \$27,420 | \$25,002 | \$24,661 | \$26,014 | \$30,500         | \$28,950          | \$28,904     | \$26,338   | \$27,167        | \$29,246                 |
| 1985 | \$27,912 | \$26,082 | \$25,710 | \$26,853 | \$30,601         | \$28,978          | \$28,772     | \$27,131   | \$27,306        | \$29,772                 |
| 1986 | \$29,165 | \$27,022 | \$26,964 | \$27,748 | \$32,420         | \$30,944          | \$30,460     | \$28,305   | \$28,175        | \$30,450                 |
| 1987 | \$30,490 | \$28,015 | \$29,259 | \$29,654 | \$33,578         | \$32,019          | \$31,407     | \$29,459   | \$29,573        | \$31,446                 |

Notes : \* Expressed in nominal dollars  
 \*\* Hinton was not included in the 1980 and 1981 studies  
 \*\*\* Lloydminster was not included in the 1980 through 1983 studies



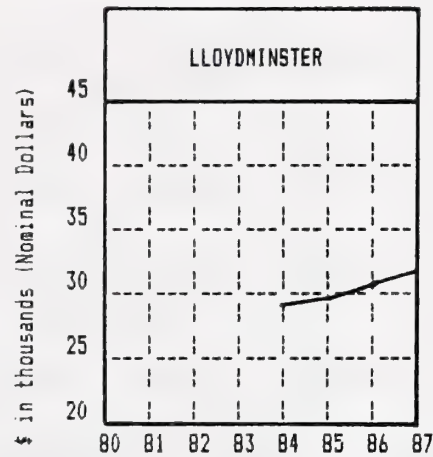
### 3.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

TABLE WA. 8 : Comparative Apartment Unit Cost Graphs 1980 -1987



3.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

TABLE WA. B : Comparative Apartment Unit Cost Graphs 1980 -1987 (Continued)



### 3.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

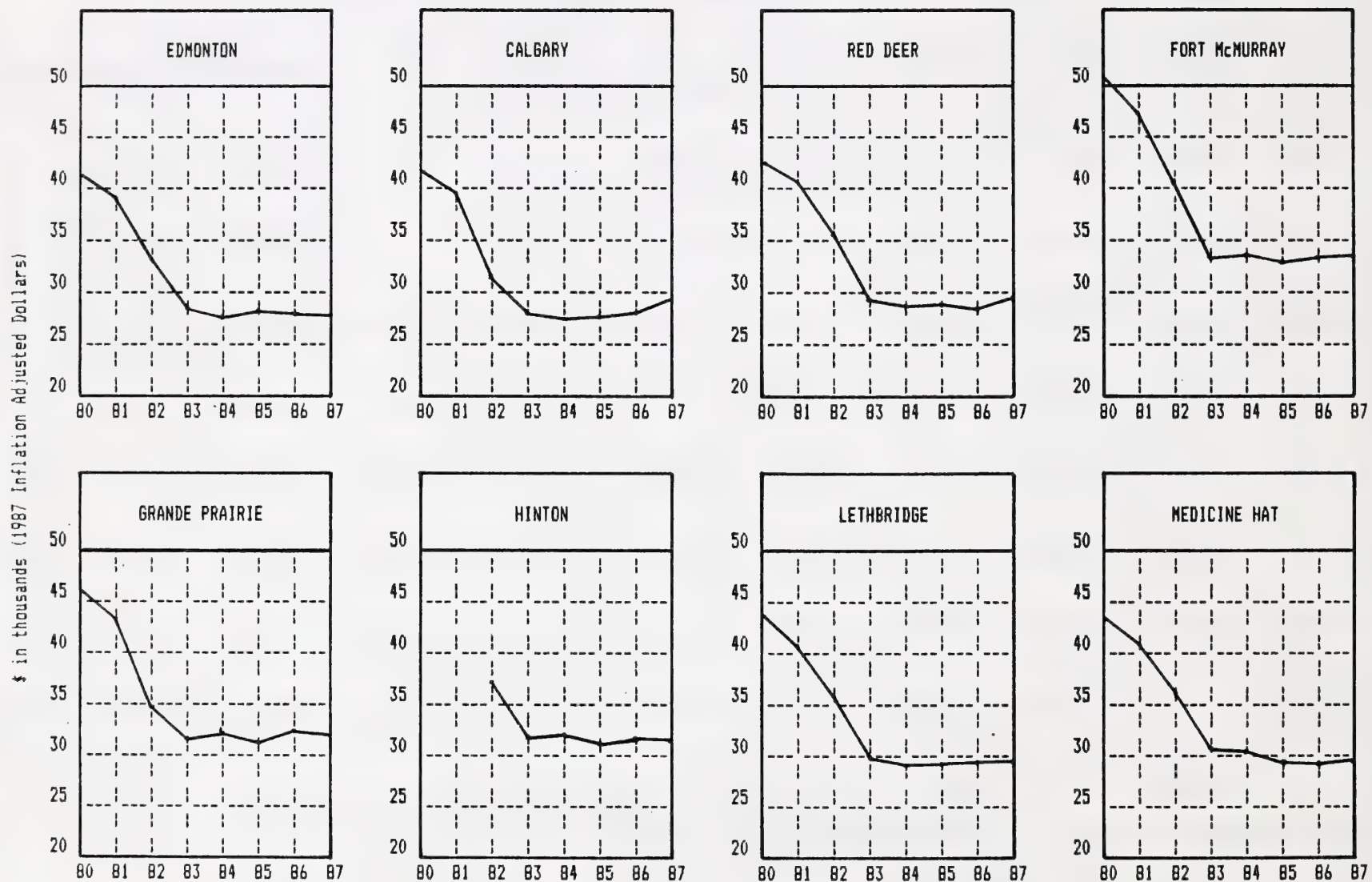
TABLE WA. 9 : Comparative Cost per Apartment Unit 1980 -1987 (Inflation Adjusted Dollars) \*

| YEAR | AVERAGE  | EDMONTON | CALGARY  | RED DEER | FORT<br>McMURRAY | GRANDE<br>PRAIRIE | **<br>HINTON | LETHBRIDGE | MEDICINE<br>HAT | ***<br>LLOYD-<br>MINSTER |
|------|----------|----------|----------|----------|------------------|-------------------|--------------|------------|-----------------|--------------------------|
| 1980 | \$44,244 | \$41,185 | \$41,802 | \$42,744 | \$50,642         | \$45,934          | -            | \$43,900   | \$43,504        | -                        |
| 1981 | \$41,713 | \$39,387 | \$39,634 | \$40,418 | \$47,502         | \$43,241          | -            | \$40,797   | \$41,013        | -                        |
| 1982 | \$35,523 | \$33,181 | \$31,314 | \$35,436 | \$40,156         | \$34,934          | \$37,142     | \$35,924   | \$36,096        | -                        |
| 1983 | \$30,531 | \$28,569 | \$28,054 | \$29,555 | \$33,744         | \$31,721          | \$31,933     | \$29,983   | \$30,692        | -                        |
| 1984 | \$30,436 | \$27,752 | \$27,374 | \$28,876 | \$33,855         | \$32,135          | \$32,083     | \$29,235   | \$30,155        | \$32,463                 |
| 1985 | \$30,145 | \$28,169 | \$27,767 | \$29,001 | \$33,049         | \$31,296          | \$31,074     | \$29,301   | \$29,490        | \$32,154                 |
| 1986 | \$30,303 | \$28,076 | \$28,016 | \$28,830 | \$33,684         | \$32,151          | \$31,648     | \$29,409   | \$29,274        | \$31,638                 |
| 1987 | \$30,490 | \$28,015 | \$29,259 | \$29,654 | \$33,578         | \$32,019          | \$31,407     | \$29,459   | \$29,573        | \$31,446                 |

- Notes : \*
- Expressed in 1987 Inflation adjusted dollars
  - Inflation adjustments have been based on the Consumer Price Index for Edmonton and Calgary
- \*\* Hinton was not included in the 1980 and 1981 studies
- \*\*\* Lloydminster was not included in the 1980 through 1983 studies

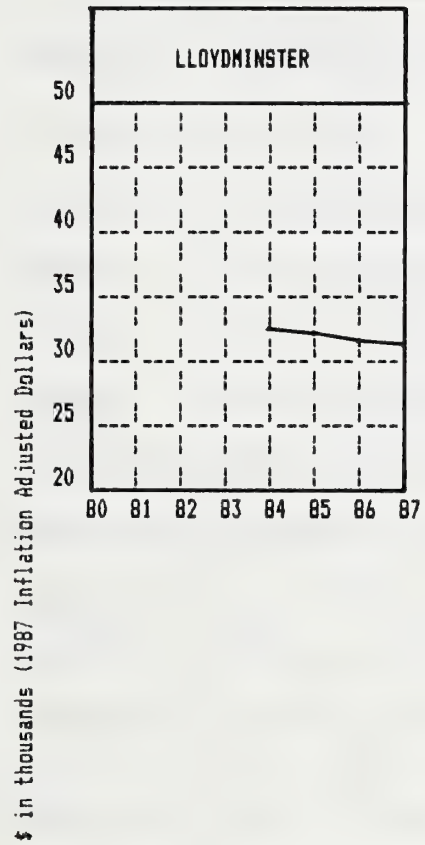
### 3.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

TABLE WA. 10 : Comparative Apartment Unit Cost Graphs 1980 -1987 (Inflation Adjusted Dollars)



3.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

TABLE WA. 10 : Comparative Apartment Unit Cost Graphs 1980 -1987 (Inflation Adjusted Dollars)





3.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

TABLE WA. 11 : Trade Division Cost Summaries

| LOCATION                  | EDMONTON  | CALGARY   | RED DEER  | FORT<br>McMURRAY | GRANDE<br>PRAIRIE | HINTON    | LETHBRIDGE | MEDICINE<br>HAT | LLOYD-<br>MINSTER |
|---------------------------|-----------|-----------|-----------|------------------|-------------------|-----------|------------|-----------------|-------------------|
| Divisions                 |           |           |           |                  |                   |           |            |                 |                   |
| 1. Excavation             | 2,240     | 3,685     | 3,018     | 3,573            | 2,978             | 2,464     | 3,165      | 2,704           | 3,174             |
| 2. Concrete               | 19,105    | 19,469    | 19,722    | 25,322           | 23,522            | 24,008    | 18,721     | 20,594          | 20,595            |
| 3. Dampproofing           | 696       | 890       | 923       | 1,231            | 1,124             | 918       | 926        | 876             | 883               |
| 4. Siding                 | 14,264    | 14,368    | 14,743    | 18,993           | 18,143            | 17,778    | 16,772     | 16,624          | 18,397            |
| 5. Roofing                | 24,385    | 25,611    | 26,104    | 33,586           | 27,496            | 26,939    | 25,188     | 25,732          | 28,633            |
| 6. Rough<br>Carpentry     | 120,444   | 126,108   | 123,507   | 146,342          | 137,425           | 130,001   | 131,527    | 118,375         | 121,780           |
| 7. Finish<br>Carpentry    | 9,176     | 9,675     | 10,015    | 10,776           | 10,133            | 9,470     | 9,545      | 9,755           | 9,578             |
| 8. Windows and<br>Glazing | 24,732    | 23,895    | 26,385    | 30,718           | 26,775            | 26,466    | 26,116     | 26,604          | 26,491            |
| 9. Sealants               | 827       | 888       | 850       | 912              | 877               | 860       | 817        | 853             | 877               |
| 10. Doors                 | 39,749    | 38,817    | 40,391    | 42,442           | 43,432            | 43,194    | 41,106     | 39,821          | 43,345            |
| 11. Hardware              | 3,319     | 3,676     | 3,524     | 3,707            | 3,571             | 3,489     | 3,368      | 3,467           | 3,462             |
| 12. Ceramic<br>Tiling     | 5,201     | 5,396     | 5,396     | 6,535            | 6,275             | 5,903     | 6,035      | 6,273           | 7,449             |
| SUB - TOTAL               | \$264,138 | \$272,478 | \$274,578 | \$324,137        | \$301,751         | \$291,490 | \$283,286  | \$271,678       | \$284,664         |

3.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

TABLE WA. 11 : Trade Division Cost Summaries (cont'd)

| LOCATION                            | EDMONTON  | CALGARY   | RED DEER  | FORT<br>McMURRAY | GRANDE<br>PRAIRIE | HINTON    | LETHBRIDGE | MEDICINE<br>HAT | LLOYD-<br>MINSTER |
|-------------------------------------|-----------|-----------|-----------|------------------|-------------------|-----------|------------|-----------------|-------------------|
| Divisions                           |           |           |           |                  |                   |           |            |                 |                   |
| 13. Wallboard                       | 48,003    | 50,287    | 49,752    | 59,312           | 52,586            | 55,278    | 49,034     | 50,840          | 56,865            |
| 14. Flooring                        | 43,225    | 45,137    | 46,836    | 51,592           | 46,971            | 46,338    | 45,644     | 46,517          | 47,410            |
| 15. Painting                        | 17,962    | 17,610    | 19,657    | 21,671           | 20,206            | 20,814    | 20,742     | 21,616          | 21,025            |
| 16. Fitting                         | 44,130    | 45,128    | 44,280    | 51,653           | 48,253            | 44,785    | 48,767     | 49,384          | 49,495            |
| 17. Specialties                     | 13,224    | 13,796    | 13,668    | 15,310           | 14,827            | 14,121    | 13,653     | 14,269          | 14,561            |
| 18. Appliances                      | 29,916    | 29,916    | 29,936    | 31,628           | 31,963            | 30,900    | 30,770     | 30,448          | 30,703            |
| 19. Plumbing                        | 60,552    | 62,520    | 62,016    | 69,000           | 71,904            | 65,592    | 60,768     | 62,544          | 60,240            |
| 20. Heating                         | 29,616    | 33,192    | 36,240    | 43,080           | 41,208            | 39,072    | 27,240     | 31,152          | 43,968            |
| 21. Ventilation                     | 7,368     | 7,680     | 7,488     | 9,432            | 9,120             | 9,204     | 8,328      | 8,400           | 9,216             |
| 22. Fire<br>Protection              | 2,040     | 2,040     | 2,040     | 2,616            | 2,592             | 2,592     | 2,040      | 2,040           | 2,616             |
| 23. Electrical                      | 37,992    | 43,320    | 47,880    | 51,048           | 53,520            | 59,880    | 42,552     | 47,184          | 60,384            |
| 24. Site Overhead                   | 49,000    | 49,000    | 49,000    | 49,000           | 49,000            | 49,000    | 49,000     | 49,000          | 49,000            |
| Subtotals - 1-24                    | \$647,166 | \$672,104 | \$683,371 | \$779,479        | \$743,901         | \$729,066 | \$681,824  | \$685,072       | \$730,147         |
| 25. Gnrl. Contr's<br>Ovhd. & Profit | 25,200    | 30,120    | 28,320    | 26,400           | 24,552            | 24,696    | 25,200     | 24,672          | 24,552            |
| TOTAL                               | \$672,366 | \$702,224 | \$711,691 | \$805,879        | \$768,453         | \$753,762 | \$707,024  | \$709,744       | \$754,699         |



APPENDIX A

Reduced Drawings : Single-Detached Dwelling







This is a detailed floor plan of a two-story house. The overall dimensions are 12,200 mm in width and 8,200 mm in depth. The plan includes the following rooms and features:

- Rooms and Dimensions:**
  - M. Bedroom: 3,200 mm x 3,100 mm
  - Bedroom: 3,200 mm x 3,100 mm
  - Bathroom: 1,600 mm x 1,600 mm
  - Bedroom: 3,500 mm x 3,100 mm
  - Living Room: 2,900 mm x 3,400 mm
  - Dining Area: 3,000 mm x 3,100 mm
  - Kitchen: 1,500 mm x 3,100 mm
- Other Features:**
  - Hall: 1,050 mm x 1,050 mm
  - Staircase: 300 x 700 mm
  - Attic Access: 300 x 700 mm
  - Driveway: 1.5 m
  - Exhaust Fan: Located in the top-right bedroom.
  - Vent: 75" VENT UP, located between the two bedrooms.
  - Entrance: 500 mm wide.
  - Windows: Various sizes indicated by dashed lines.
  - Doors: Indicated by arcs.
- Dimensions:**
  - Top: 1,600, 3,900, 2,400, 2,500, 1,800
  - Right: 4,700, 3,500
  - Bottom: 2,900, 3,000, 600, 1,500, 3,100, 1,500
  - Left: 3,400

GROUND FLOOR PLAN

③ SMOKE ALARM  
SHALL BE INSTALLED BY A  
PERMANENT CONNECTION TO AN  
ELECTRICAL CIRCUIT

## ALBERTA HOUSE COST COMPARISON STUDY

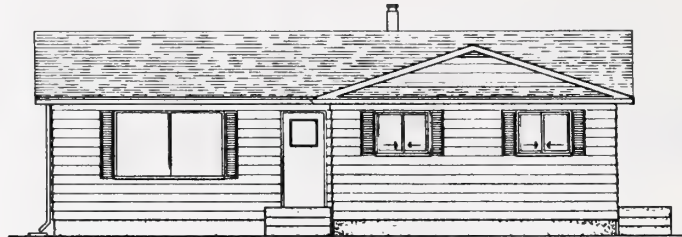
### FLOOR PLANS

SCALE 1 : 50

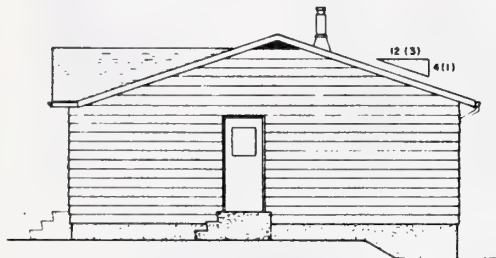




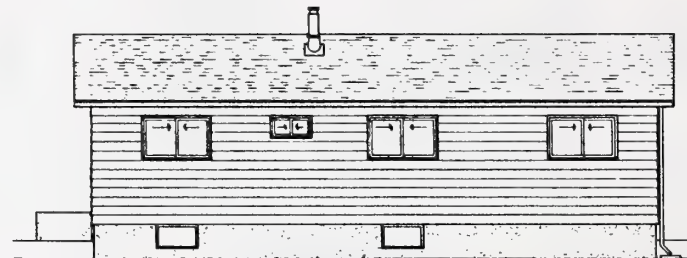
LEFT ELEVATION



FRONT ELEVATION



RIGHT ELEVATION



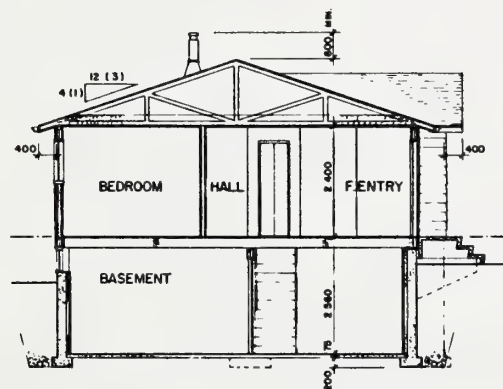
REAR ELEVATION

**ALBERTA HOUSE COST COMPARISON STUDY**

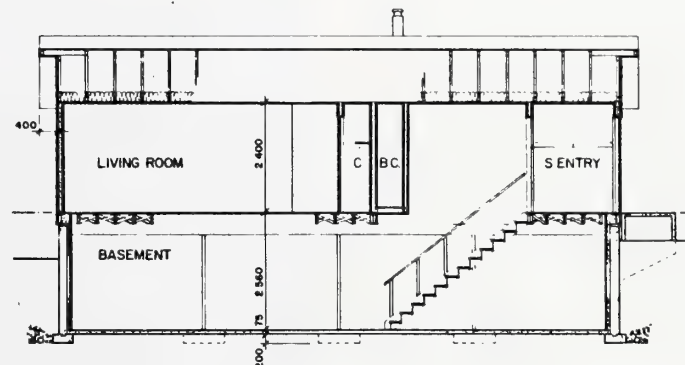
ELEVATIONS

SCALE 1:50





SECTION A



SECTION B

#### EXTERIOR WALLS

- PREFINISHED ALUMINUM SIDING
- ASPHALT FELT BUILDING PAPER
- 8mm EXT. GRADE PLYWOOD SHEATHING
- 38 x 89mm WOOD STUDS @ 400mm O.C.
- NO. 2 GR. SPRUCE OR BETTER
- RSI 2.113 BATT INSULATION
- .102mm POLY. VAPOUR BARRIER
- 13mm GYPSUM BOARD TAPED AND SANDED

#### BASEMENT WALLS

- 2 COATS ASPHALTIC EMULSION DAMPROOFING
- 200mm - 20MPA POURED CONCRETE REINFORCED
- 0.06 POLY VAPOUR BARRIER
- 38mm x 64mm WOOD STRAPPING AT 400mm O.C.
- RSI 1.4 BATT INSULATION
- 13mm GYPSUM BOARD TAPED AND SANDED
- 200 x 450 - 20MPA CONT. POURED CONCRETE FOOTING, REINFORCED 100mm DIAMETER PERFORATED PLASTIC WEAVING PIPE
- 300mm MIN. CRUSHED GRAVEL COVER

#### NOTE:

THE DAMP PROOFING SHALL EXTEND FROM THE BASEMENT FLOOR AND SHALL TERMINATE AT GROUND LEVEL.

NO MEMBRANE SHALL BE APPLIED ABOVE GROUND LEVEL BETWEEN THE INSULATION AND THE FOUNDATION WALL.

#### FLOORS

##### GROUND

- 8mm PLYWOOD SHEATHING SUB FLOOR
- 16mm PLYWOOD SHEATHING SUB FLOOR UNDERLAY
- 38 x 235mm FLOOR JOISTS AT 400mm O.C.
- NO. 2 GRADE SPRUCE OR BETTER
- 4 - 38 x 235mm BUILT-UP BEAM NO. 2 GRADE FIR OR BETTER
- 3 - 75mm DIAMETER x 4.76mm THICK STEEL TELEPOSTS ON 635 x 635 x 200mm THICK CONCRETE PAD FOOTINGS. TELEPOSTS FITTED TOP AND BOTTOM WITH 6.35mm THICK STEEL BEARING PLATES. MIN. SIZE TO BE 100 x 100mm TOP PLATE TO MATCH WIDTH OF SUPPORTED BEAM.

##### BASEMENT

- 75mm - 20MPA POURED CONCRETE SLAB ON GRADE
- .152mm POLY VAPOUR BARRIER
- 150mm SAND OR GRAVEL BED

#### ROOF

- ASPHALT SHINGLES
- 12mm EXT. GRADE PLYWOOD SHEATHING
- APPROVED TRUSSES @ 600mm O.C.
- 38 x 89mm NO. 2 GRADE FIR OR BETTER
- RSI 6 BLOWN CELLULOSE INSULATION TO ATTIC
- .102mm POLY VAPOUR BARRIER
- 13mm GYPSUM BOARD CEILING

#### FASCIA

- 25 x 150mm SPRUCE BOARD, PREFINISHED ALUMINUM

#### SOFFIT

- PREFINISHED ALUMINUM PERFORATED

#### EAVESTROUGH

- PREFINISHED ALUMINUM GA. .376mm WITH FITTINGS

#### DOWNSPOUT

- PREFINISHED ALUMINUM GA. .376mm, CORRUGATED: RECTANGULAR WITH FITTINGS

#### FLASHINGS

- GALVANIZED STEEL GA. .457mm AT EAVES, VALLEYS, VERTS, ETC.

#### STAIRS

##### FRONT STEPS

- PRECAST CONCRETE WITH SUPPORTING BRACKETS 1500 x 1500 x 600mm - 3 RISERS

##### SIDE STEPS

- PRECAST CONCRETE WITH SUPPORTING BRACKETS 1200 x 1675 x 600mm - 3 RISERS

##### BASEMENT

- 38 x 235mm STRINGERS
- 38 x 235mm TREADS
- 6.4mm PLYWOOD RISERS
- 50mm DIAMETER FIR HANDRAIL WITH BRACKETS

#### MECHANICAL NOTES

1. ALL GAS FIRED APPLIANCES SHALL BE INSTALLED IN ACCORDANCE WITH "THE GAS PROTECTION ACT AND REGULATIONS PURSUANT TO THAT ACT".
2. PROVIDE ADEQUATE COMBUSTION AIR FOR GAS FIRED FURNACE.
3. ALL DUCTWORK SHALL BE GALVANIZED STEEL IN CONFORMANCE WITH CODE.
4. PROVIDE FRESH AIR DUCT FROM OUTDOORS WITH SUITABLY SIZED FRESH AIR GRILLE AND CONNECT TO COLD RETURN AIR DUCT UPSTREAM OF FURNACE CIRCULATING FAN.
5. ALL HEATING EQUIPMENT SHALL BE SIZED TO MAINTAIN A TEMPERATURE OF +22°C INSIDE AT MAIN FLOOR WHEN OUTSIDE TEMPERATURE IS -36°C. THE BASEMENT TEMPERATURE MAY BE HELD AT +18°C.

#### NOTES

1. PROVIDE 500 x 700mm OPERABLE PLYWOOD HATCHWAY.
2. APPLY FLASHING, FULL WIDTH, OVER ALL EXTERIOR WALL OPENINGS.
3. UNOBSTRUCTED VENT AREA OF NOT LESS THAN 1/300 OF INSULATED CEILING AREA.
4. ANCHORAGE SHALL BE PROVIDED BY EMBEDDING THE ENDS OF THE FIRST FLOOR JOISTS IN CONCRETE, OR FASTENING THE SILL PLATE TO THE FOUNDATION WITH NOT LESS THAN 12.7mm DIAMETER ANCHOR BOLTS SPACE, NOT MORE THAN 2.4 m O.C. SUCH ANCHOR BOLTS SHALL BE EMBEDDED AT, LESS THAN 100mm TO THE FOUNDATION, AND SO DESIGNED THAT THEY MAY BE TIGHTENED WITHOUT WITHDRAWING THEM FROM THE FOUNDATION.
5. PROVIDE 38 x 38mm CROSS-BRACE IN OR 19 x 64mm CONTINUOUS STRAPPI. AT MID-SPAN OR FLOOR JOISTS.
6. APPLY 0.15mm POLYETHYLENE AT ROOF EAVES, EXTENDING FROM EDGE OF ROOF 914mm UP ROOF SLOPE.
7. 10mm PLYWOOD ROOF SHEATHING MAY BE USED AS AN ALTERNATIVE TO 12mm PLYWOOD (SEE ROOF) IF ALL EDGES ARE SUPPORTED.
8. EAVESTROUGH AND DOWNSPOUTS SHALL CONFORM TO THE REQUIREMENTS OF SUBSECTION 9.27.15 OF THE ALBERTA BUILDING CODE.
9. ALL ELECTRICAL FACILITIES SHALL COMPLY WITH SUBSECTION 9.35 OF THE ALBERTA BUILDING CODE WHERE APPLICABLE.

## ALBERTA HOUSE COST COMPARISON STUDY

#### SECTIONS

SCALE 1:50



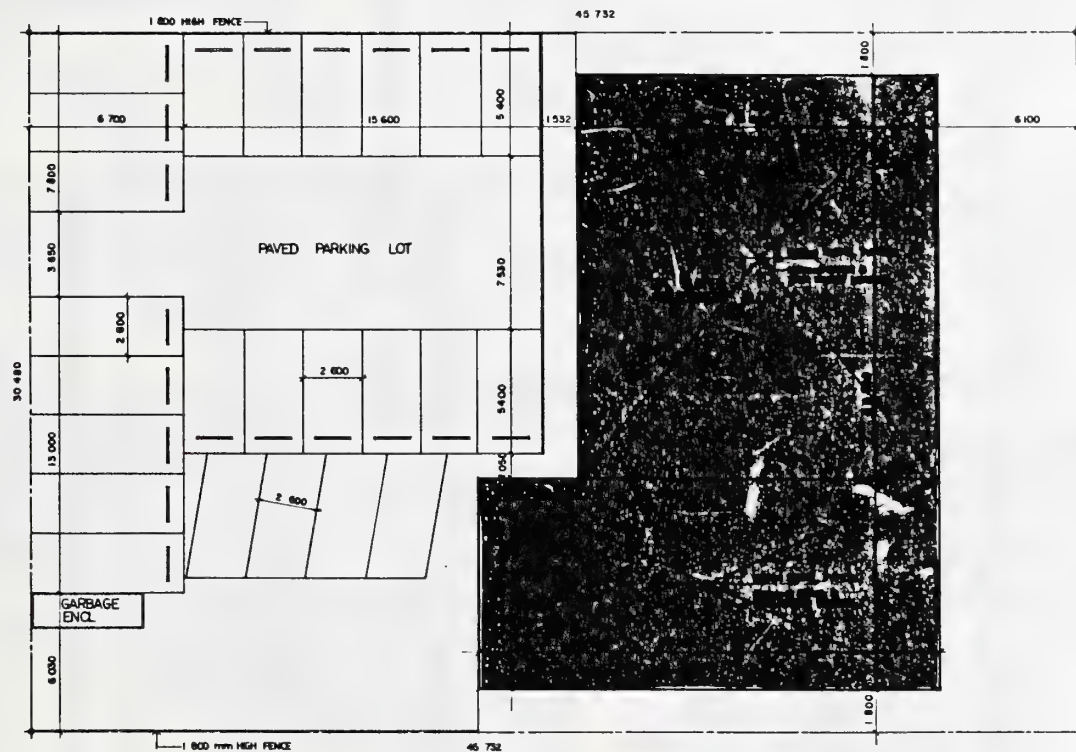


APPENDIX B

Reduced Drawings : Walk-Up Apartment







STATISTICS  
 SITE AREA 159sqm<sup>2</sup>  
 SUITES 24 ONE BEDROOM  
 BUILDING AREA 465m<sup>2</sup>  
 PARKING 24 CARS

THE BUILDING IS REQUIRED TO FACE AT LEAST ONE STREET.  
 ACCESS WALL PANELS -OR- WINDOW SHALL BE PROVIDED ON SECOND AND THIRD FLOOR IN AT LEAST 1 WALL FACING ON A STREET.

SPECIAL SEPARATIONS BETWEEN BUILDINGS.  
 THE MAXIMUM PERCENTAGE OF UNPROTECTED OPENING IN AN EXPOSED BUILDING FACE SHALL CONFORM TO THE REQUIREMENTS OUTLINED IN THE ALBERTA BUILDING CODE, (9.10.14.1)  
 ONE SET OF EXAMINED DRAWINGS SHALL BE AVAILABLE CONTINUOUSLY AT THE CONSTRUCTION SITE DURING WORKING HOURS FOR INSPECTION BY THE AUTHORITY HAVING JURISDICTION.

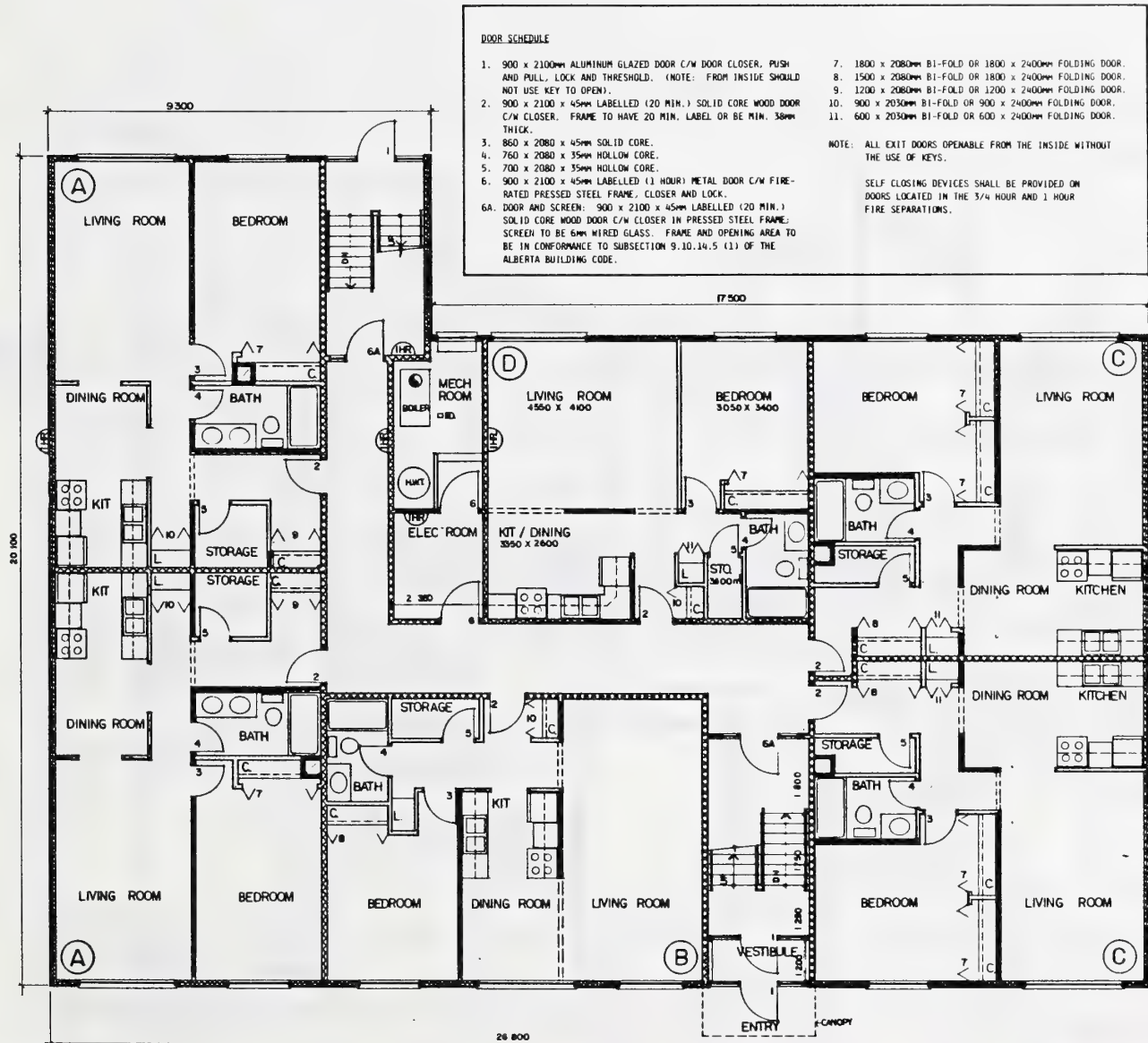
# ALBERTA HOUSE COST COMPARISON STUDY

SITE PLAN

SCALE 1:100







#### WALL LEGEND

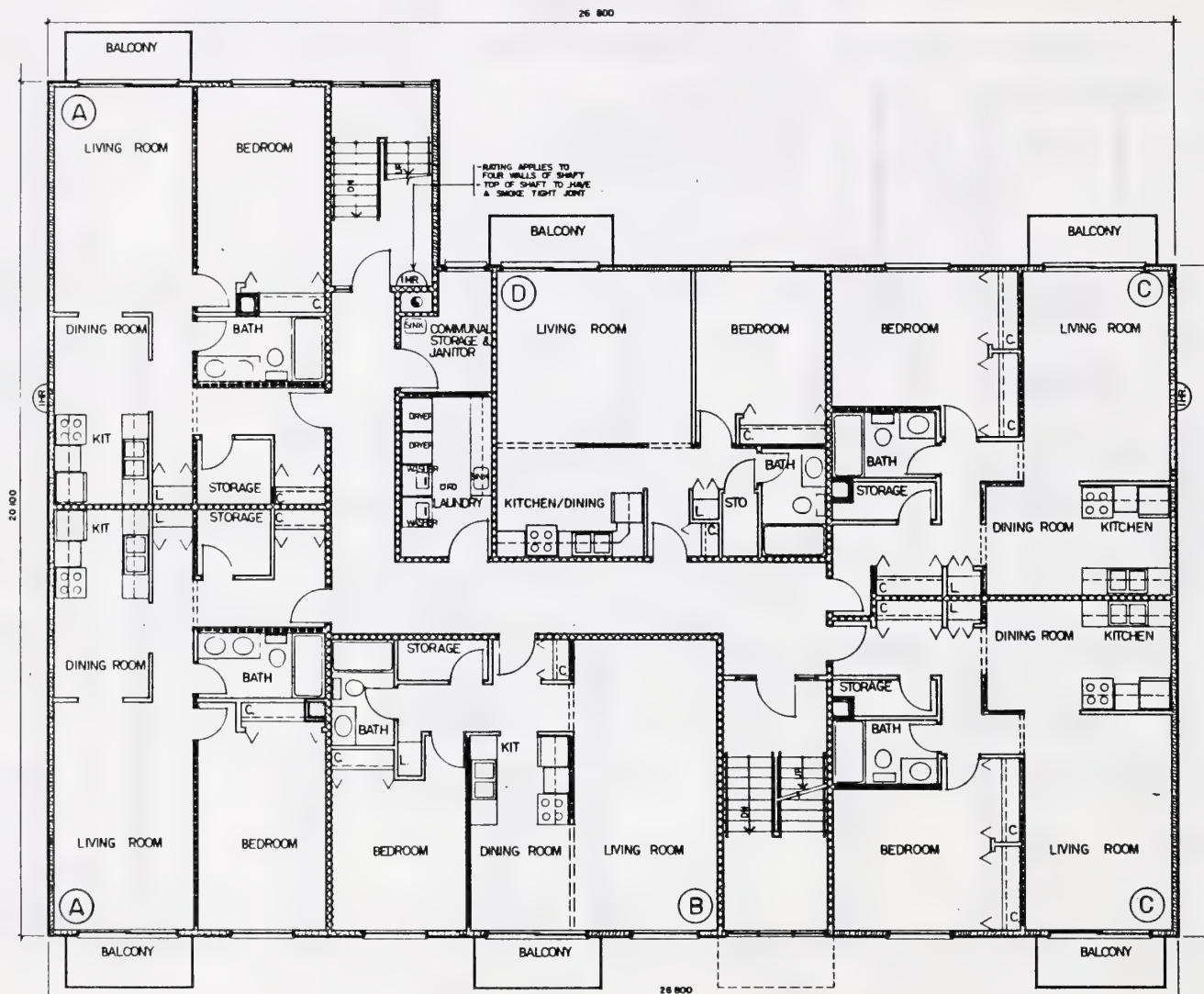
- EXTERIOR STUD WALL C/W 38 x 38mm STRAPPING TO FOUNDATION WALL, SIDING OR STUCCO, BUILDING PAPER, 38 x 140mm STUDS @ 400mm O.C., RSI 3.5 MINERAL WOOL INSULATION, VAPOUR BARRIER, 12.7mm GYPSUM BOARD.
- EXTERIOR STUD WALL, 1 HOUR FIRE RESISTANCE RATING, C/W 38 x 38mm STRAPPING TO FOUNDATION WALL, NON-COMBUSTIBLE SIDING OR STUCCO, BUILDING PAPER, 38 x 140mm STUDS @ 400mm O.C., RSI 3.5 MINERAL WOOL INSULATION WITH DENSITY OF 1.24g/m<sup>3</sup>, VAPOUR BARRIER, 15.9mm TYPE X GYPSUM BOARD.
- EXTERIOR STUD WALL, SIDING OR STUCCO, BUILDING PAPER, 38 x 89mm STUDS @ 400mm O.C., RSI 2.1 MINERAL WOOL INSULATION, VAPOUR BARRIER, 12.7mm GYPSUM BOARD.
- EXTERIOR STUD WALL, 1 HOUR FIRE RESISTANCE RATING, NON-COMBUSTIBLE SIDING OR STUCCO, BUILDING PAPER, 38 x 89mm STUDS @ 400mm O.C., RSI 2.1 MINERAL WOOL INSULATION WITH DENSITY OF 1.24g/m<sup>3</sup>, VAPOUR BARRIER, 15.9mm TYPE X GYPSUM BOARD.
- INTERIOR WALL (3/4 HOUR FIRE SEPARATION): 2 ROWS OF 38 x 89mm STUDS, EACH SET 400mm O.C. STAGGERED ON COMMON 38 x 140mm PLATE, MINERAL FIBRE WITH A MASS OF AT LEAST 1.24g/m<sup>3</sup> ON EACH SIDE, 12.7mm GYPSUM BOARD, BOTH SIDES.
- INTERIOR WALL, 12.7mm GYPSUM BOARD BOTH SIDES OF 38 x 140mm STUDS.
- INTERIOR WALL, (1/2 HOUR FIRE RESISTANCE RATING) 38 x 89mm STUDS @ 400mm O.C. (BASEMENT - 38 x 140mm STUDS) AND 12.7mm TYPE X GYPSUM BOARD, BOTH SIDES.
- INTERIOR WALL (1 HOUR FIRE SEPARATION): 2 ROWS OF 38 x 89mm STUDS, EACH SET 400mm O.C. STAGGERED ON COMMON 38 x 140mm PLATE, MINERAL FIBRE ON EACH SIDE, 15.9mm TYPE X GYPSUM BOARD, BOTH SIDES.
- INTERIOR WALL (1 HOUR FIRE SEPARATION): 38 x 140mm STUDS @ 400mm O.C. AND 15.9mm TYPE X GYPSUM BOARD BOTH SIDES.
- INTERIOR WALL: 38 x 89mm STUDS AT 400mm O.C. AND 12.7mm GYPSUM BOARD, BOTH SIDES.
- == DROP BEAM
- NOTES
- DOUBLE STUDS UNDER ALL BEARING POINTS AND ALL OPENINGS.
  - LINTELS: 2 - 38 x 235mm BUILT-UP LINTEL, HORIZONTALLY ABOVE ALL OPENINGS.
  - BALCONY CANTILEVERED JOISTS SHALL EXTEND INTO BUILDING MINIMUM 2400mm.
- SHAFT ENCLOSURE: 3/4 FIRE RESISTANCE RATING AND STC OF 45, 15.9mm TYPE X GYPSUM BOARD, 57mm x 530mm THICK GALVANIZED STEEL I-STUDS AT 400mm O.C. AND J-TRACKS TOP AND BOTTOM, RESILIENT FURRING CHANNELS @ 600mm O.C., MINERAL WOOL INSULATION WITH DENSITY OF 1.24g/m<sup>3</sup>, 19mm GYPSUM CORE BOARD.

#### ALBERTA HOUSE COST COMPARISON STUDY

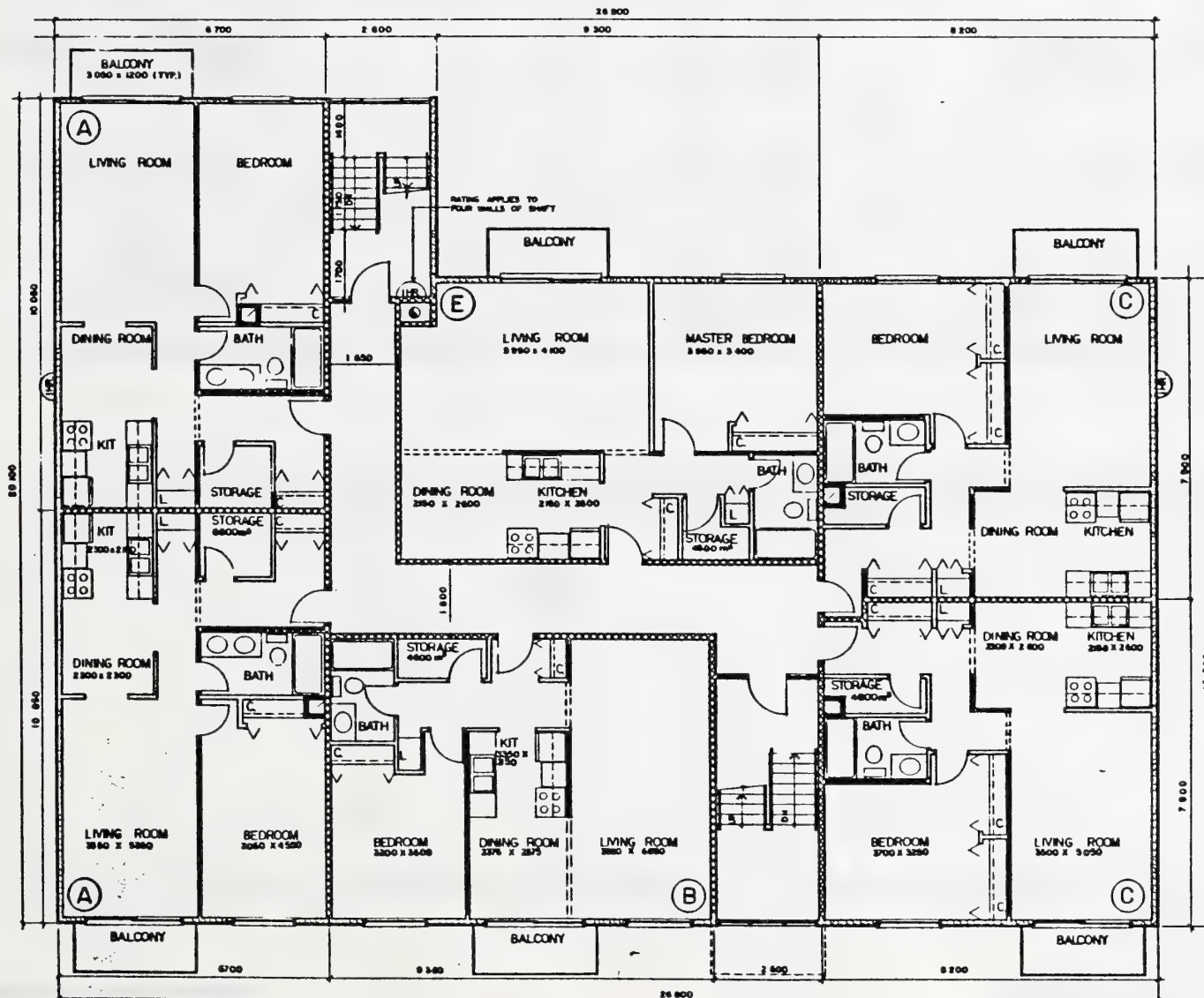
BASEMENT FLOOR PLAN

SCALE 1"=30'









# ALBERTA HOUSE COST COMPARISON STUDY

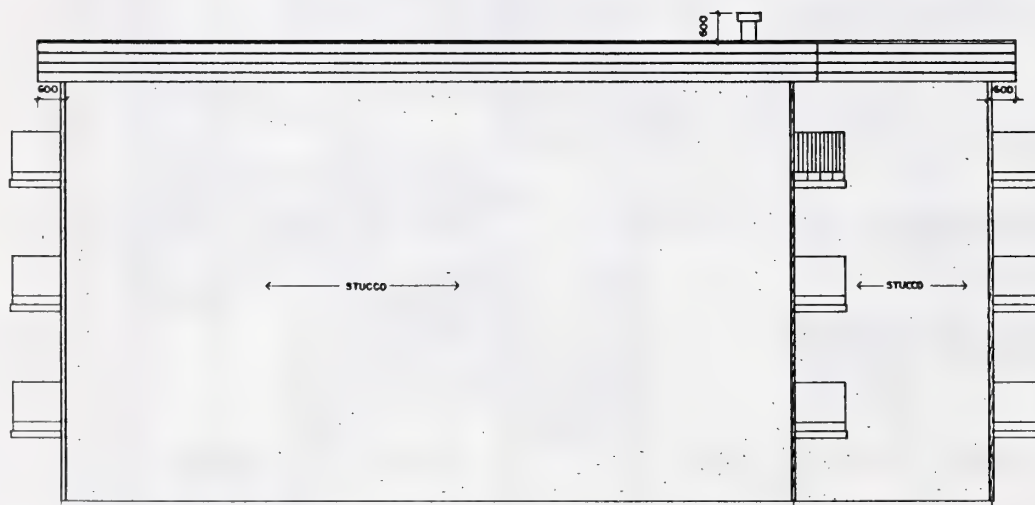
2ND & 3RD FLOOR PLAN

SCALE 1" = 8'





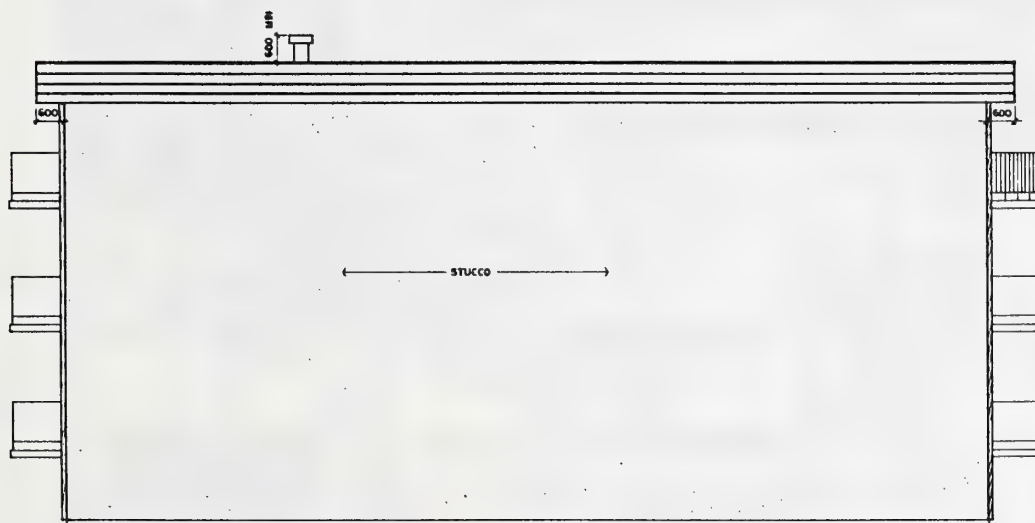
FRONT ELEVATION



RIGHT ELEVATION



REAR ELEVATION



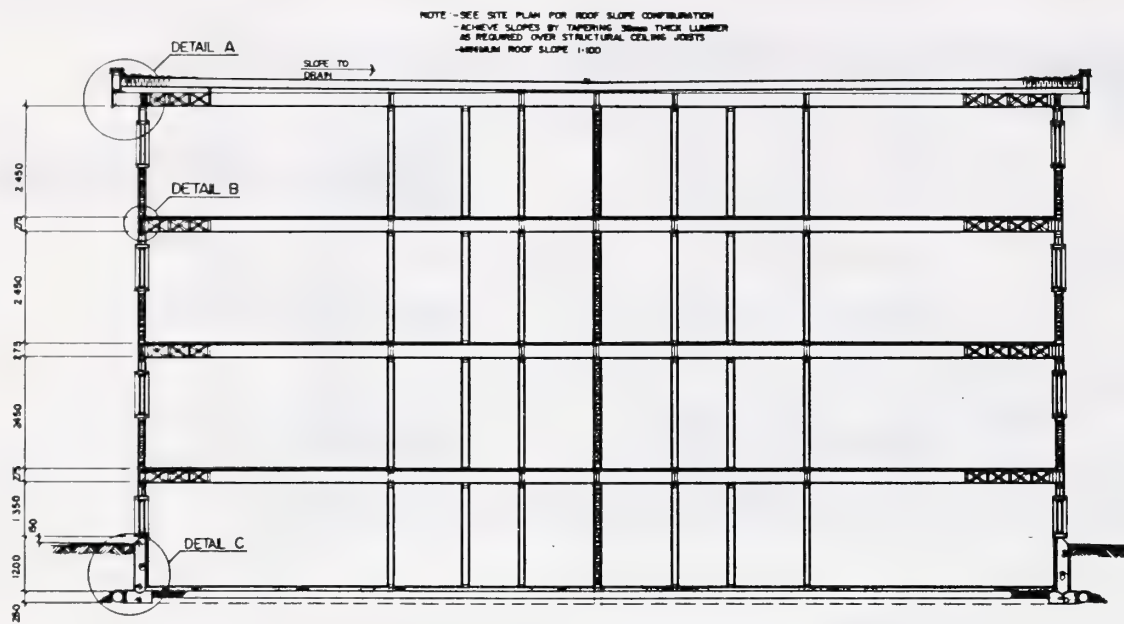
LEFT ELEVATION

DRAWINGS SHALL BE SIGNED AND SEALED BY A  
PROFESSIONAL ENGINEER OR ARCHITECT REGISTERED  
IN THE PROVINCE OF ALBERTA.

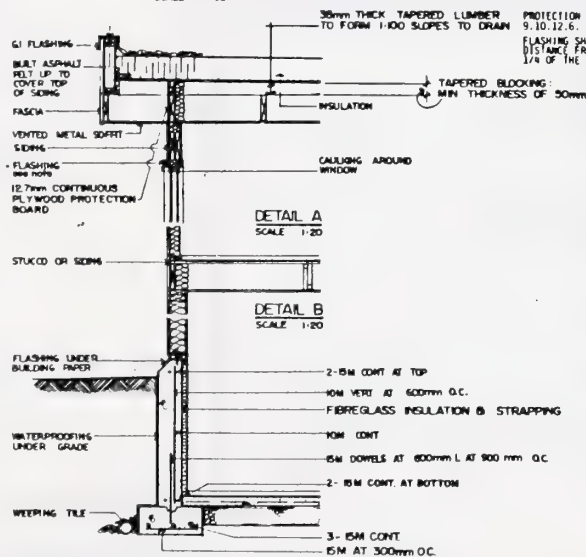
**ALBERTA HOUSE COST COMPARISON STUDY**  
ELEVATIONS

SCALE 1:50





SECTION  
SCALE 1:50

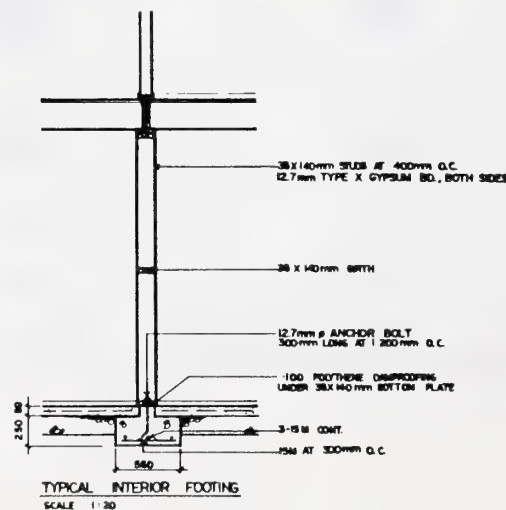


DETAIL A  
SCALE 1:20

DETAIL B  
SCALE 1:20

DETAIL C  
SCALE 1:20

PROTECTION OF SOFFITS SHALL BE PROVIDED AS STATED IN ARTICLES 9.10.12.6. OR 9.10.12.7.  
FLASHING SHALL BE APPLIED OVER ALL EXTERIOR OPENINGS WHERE THE VERTICAL DISTANCE FROM THE BOTTOM OF THE LAVE TO THE TOP OF THE TRIM IS MORE THAN 1/4 OF THE HORIZONTAL OVERHANG OF THE LAVE.



TYPICAL INTERIOR FOOTING  
SCALE 1:20

#### ROOF CONSTRUCTION - 1 HOUR FIRE RESISTANCE RATING

- ROOFING GRAVEL
- BUILT-UP ROOFING
- RSI 6 RIGID FIBREGLASS INSULATION AND VAPOUR BARRIER
- 10mm PLYWOOD SHEATHING: ALL EDGES SUPPORTED WITH MIN. 38 x 38mm WOOD BLOCKING
- 38 x 235mm NO. 1 SPRUCE JOISTS AT 400mm O.C.
- 38 x 38mm CROSS-BRIDGING

- 15.9mm TYPE X GYPSUM BOARD

#### EXTERIOR WALL CONSTRUCTION

TYPE A: NO FIRE RESISTANCE RATING

- SIDING OR STUCCO
- BUILDING PAPER
- RSI 2.1 MINERAL WOOL INSULATION AND VAPOUR BARRIER
- 38 x 89mm WOOD STUDS @ 400mm O.C. (38 x 140mm WOOD STUDS @ 400mm O.C. FOR BASEMENT)
- 12.7mm GYPSUM BOARD

TYPE B: 1 HOUR FIRE RESISTANCE RATING

- SAME AS TYPE A EXCEPT MINERAL WOOL INSULATION TO HAVE DENSITY OF 1.24g/m<sup>3</sup>; 15.9mm TYPE X GYPSUM BOARD AND STUCCO OR NON-COMBUSTIBLE SIDING

#### FLOOR CONSTRUCTION

- 3/4 HOUR FIRE SEPARATION AND S.T.C. RATING OF 45
- FLOOR FINISH
- 8mm PLYWOOD UNDERLAY
- 19mm T & G LUMBER OR 15.9mm PLYWOOD OR WAFERBOARD SUBFLOOR WITH MINERAL FIBRE BETWEEN JOISTS SPACED 400mm O.C.
- 38 x 235mm NO. 1 SPRUCE JOISTS AT 400mm O.C.
- 38 x 38mm CROSS-BRIDGING AT 2.1m O.C. MAX.
- RESILIENT CHANNELS
- 15.9mm TYPE X GYPSUM BOARD TYPICALLY EXCEPT FOR MECHANICAL ROOM CEILING: APPLY 2 LAYERS OF 15.9mm TYPE X GYPSUM BOARD

#### CORRIDOR AND DENISING WALL CONSTRUCTION

- 3/4 HOUR FIRE SEPARATION AND S.T.C. RATING OF 45
- TWO ROWS 38 x 89mm STUDS, EACH SET 400mm O.C. STAGGERED ON COMMON 38 x 140mm PLATE, MINERAL FIBRE WITH A MASS OF AT LEAST 1.24g/m<sup>3</sup> ON EACH SIDE
- 12.7mm GYPSUM BOARD, BOTH SIDES.

#### BEARING WALL CONSTRUCTION

- 3/4 HOUR FIRE RESISTANCE RATING
- 38 x 140mm OR 38 x 89mm WOOD STUDS @ 400mm O.C.
- 12.7mm TYPE X GYPSUM WALLBOARD, BOTH SIDES

#### NOTES

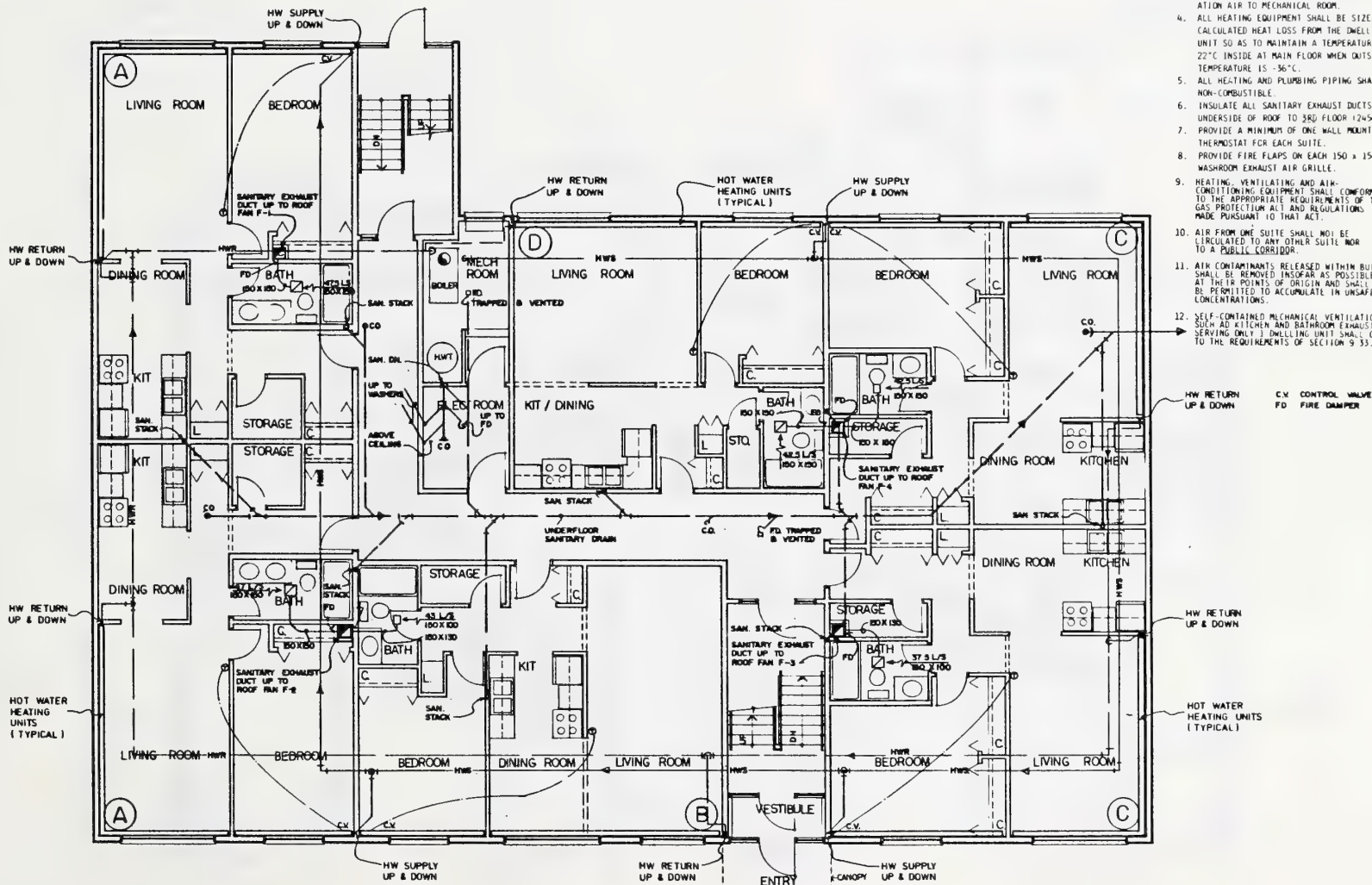
1. PROVIDE GALVANIZED STEEL, GA. #57mm AT THE HEAD OF ALL EXTERIOR OPENINGS.
2. WEERING TILES SHALL BE LAID ON UNDISTURBED OR WELL-COMPACTED SOIL SO THAT THE TOP OF THE WEERING TILE IS BELOW THE UNDERSIDE OF THE FLOOR SLAB.
3. ROOF TRUSSES SHALL BE DESIGNED IN CONFORMANCE WITH PART 9 AND FOR THE APPROPRIATE GROUND SNOW LOADS STATED IN TABLE 2.2.1.8. (STANDARD 85-D1-008)

NOTE  
ALTERNATE INSULATION  
RSI 6 FIBREGLASS BATT  
INSULATION SET IN  
JOIST SPACE



# MECHANICAL NOTES

1. GAS FIRED HOT WATER HEATING BOILER SHALL BE INSTALLED IN ACCORDANCE WITH "THE GAS PROTECTION ACT AND REGULATIONS MADE PURSUANT TO THE ACT".
2. PROVIDE TYPE "B" CHIMNEY FOR BOILER.
3. PROVIDE ADEQUATE COMBUSTION AND VENTILATION AIR TO MECHANICAL ROOM.
4. ALL HEATING EQUIPMENT SHALL BE SIZED ON A CALCULATED HEAT LOSS FROM THE DWELLING UNIT SO AS TO MAINTAIN A TEMPERATURE OF 22°C INSIDE AT MAIN FLOOR WHEN OUTSIDE TEMPERATURE IS -36°C.
5. ALL HEATING AND PLUMBING PIPING SHALL BE NON-COMBUSTIBLE.
6. INSULATE ALL SANITARY EXHAUST DUCTS FROM UNDERSIDE OF ROOF TO 3RD FLOOR (2450mm).
7. PROVIDE A MINIMUM OF ONE WALL MOUNTED THERMOSTAT FOR EACH SUITE.
8. PROVIDE FIRE FLAPS ON EACH 150 x 150mm WASHROOM EXHAUST AIR GRILLE.
9. HEATING, VENTILATING AND AIR-CONDITIONING EQUIPMENT SHALL CONFORM TO THE APPROPRIATE REQUIREMENTS OF THE GAS PROTECTION ACT AND REGULATIONS MADE PURSUANT TO THAT ACT.
10. AIR FROM ONE SUITE SHALL NOT BE CIRCULATED TO ANY OTHER SUITE NOR TO A PUBLIC CORRIDOR.
11. AIR CONTAMINANTS RELEASED WITHIN BUILDINGS SHALL BE REMOVED INsofar AS POSSIBLE AT THEIR POINTS OF ORIGIN AND SHALL NOT BE PERMITTED TO ACCUMULATE IN UNSAFE CONCENTRATIONS.
12. SELF-CONTAINED MECHANICAL VENTILATION SYSTEMS, SUCH AS KITCHEN AND BATHROOM EXHAUST FANS, SERVING ONLY 1 DWELLING UNIT SHALL CONFORM TO THE REQUIREMENTS OF SECTION 9.33.



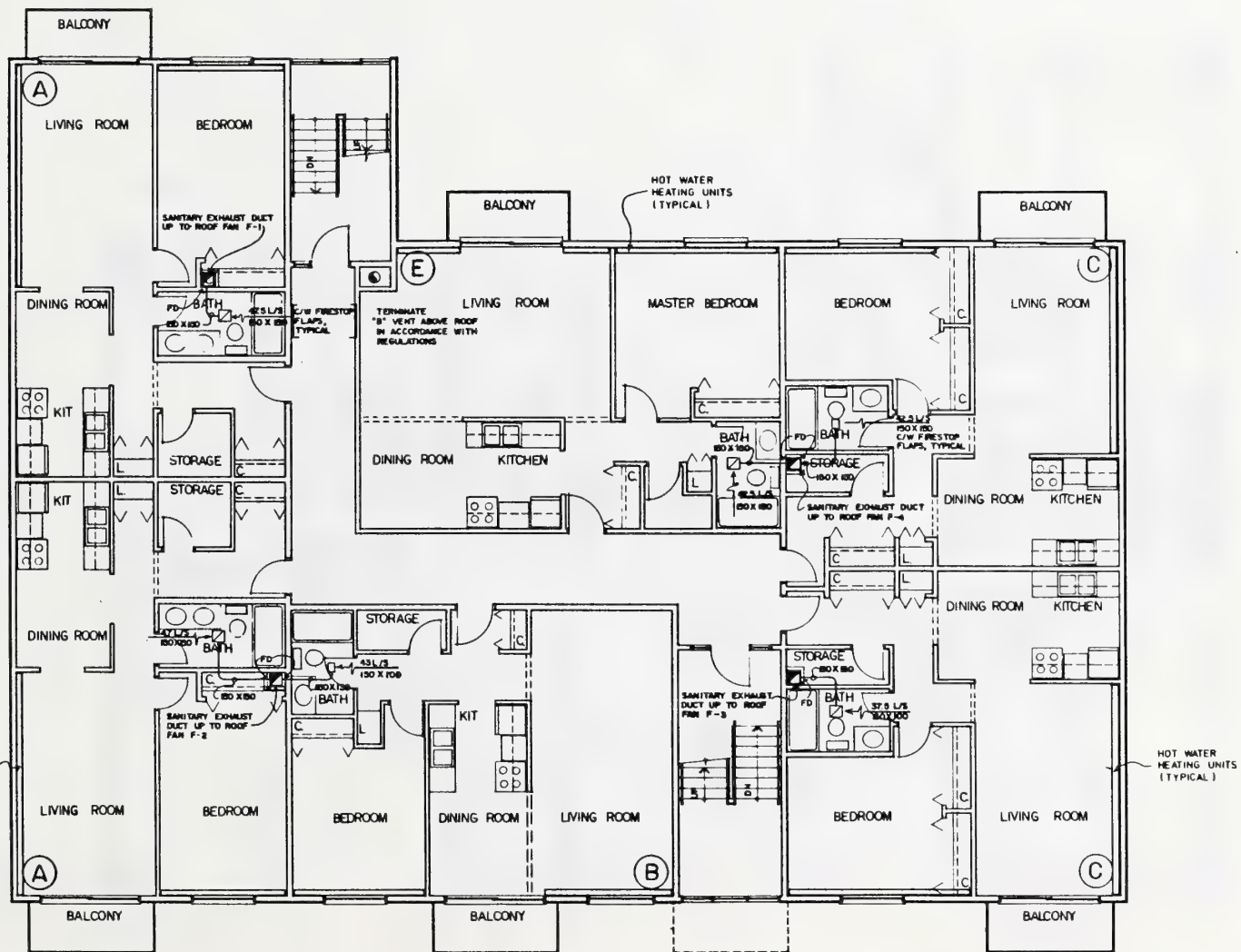
## ALBERTA HOUSE COST COMPARISON STUDY

BASEMENT FLOOR PLAN  
MECHANICAL LAYOUT  
SCALE 1" = 50'





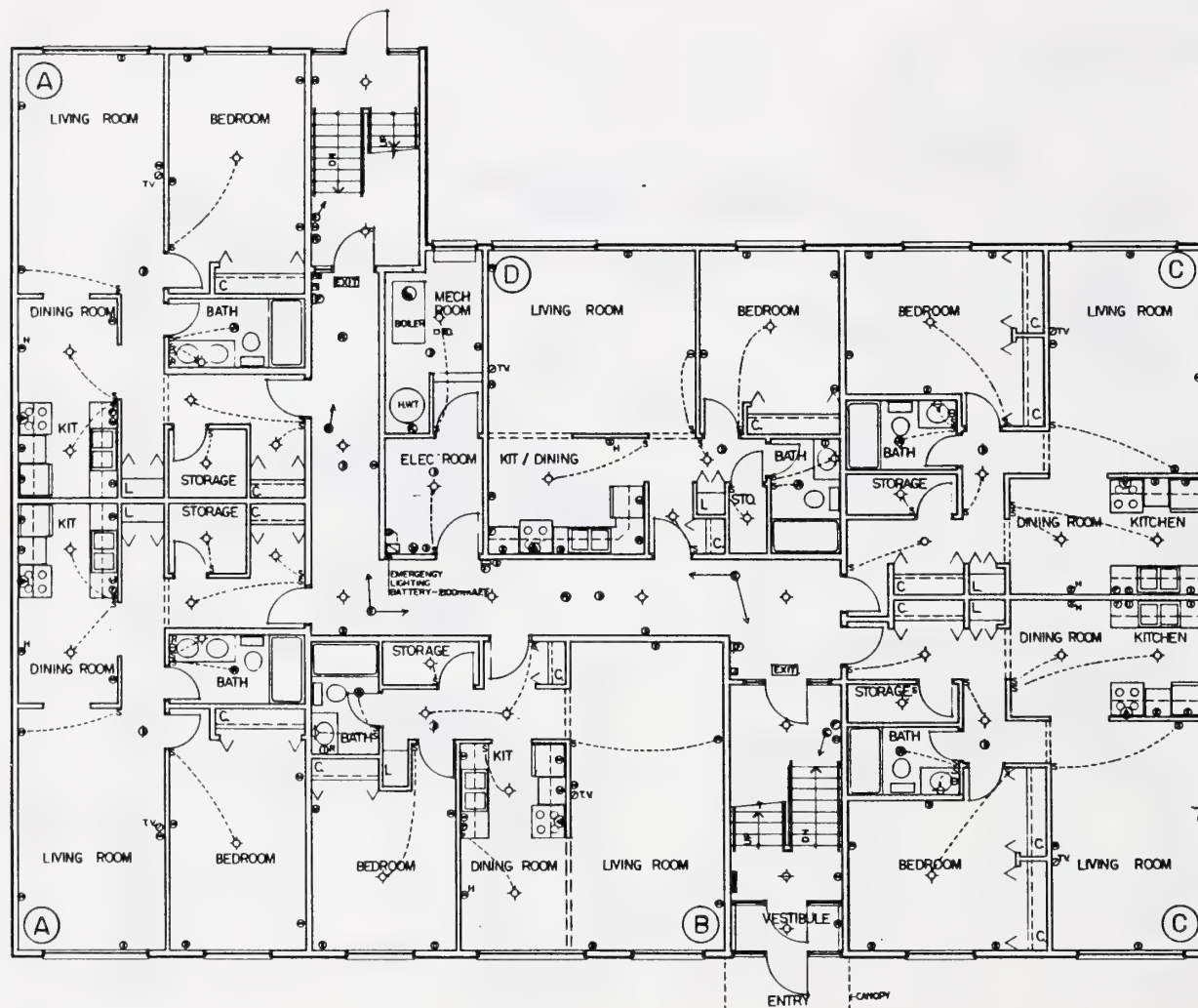




**ALBERTA HOUSE COST COMPARISON STUDY**

2ND & 3RD FLOOR PLAN  
MECHANICAL LAYOUT  
SCALE 1" = 50'





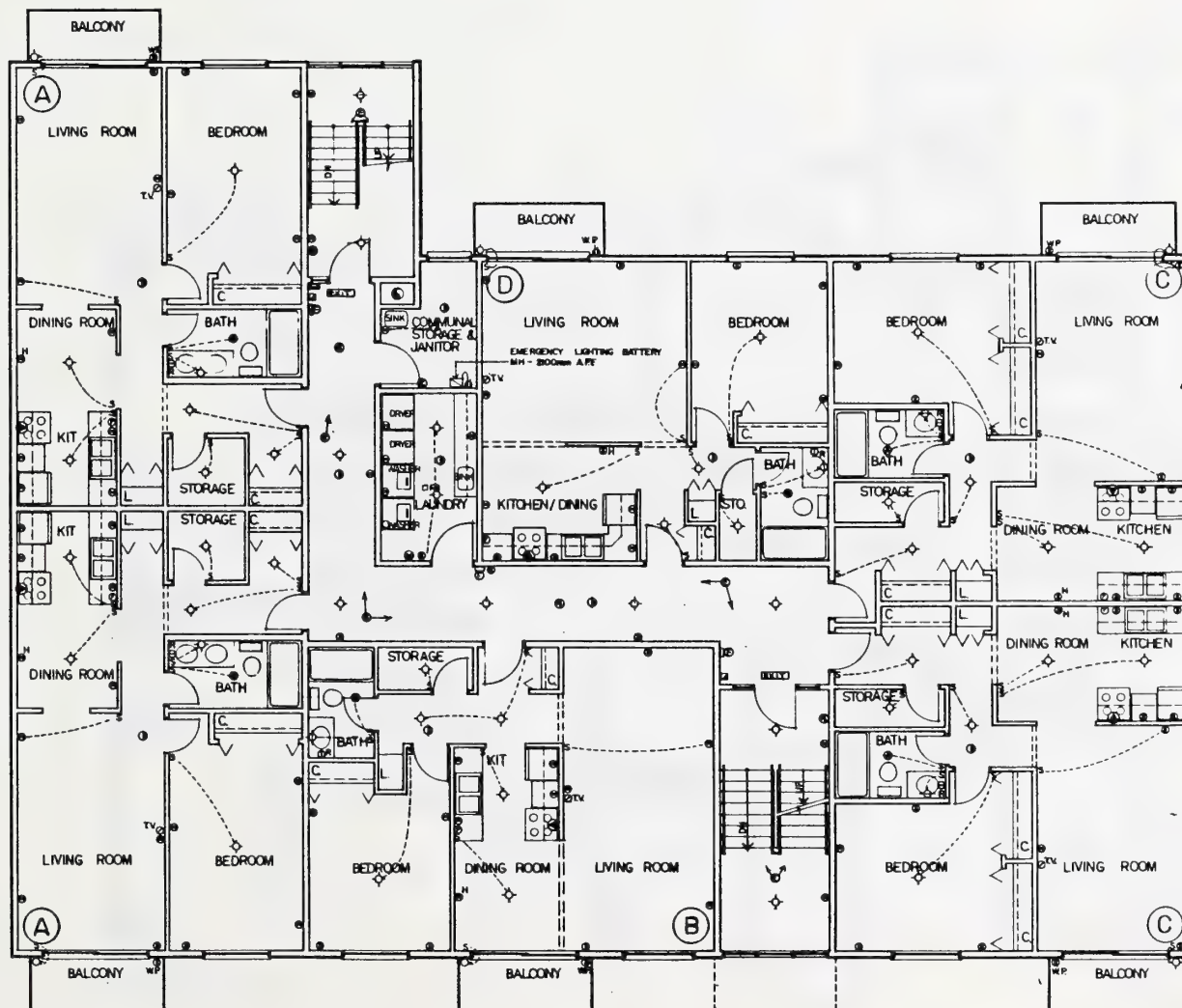
# ELECTRICAL LEGEND

- EXIT - EXIT LIGHTS WITH 2-75W - 120V AND 1-12V-15W EMERGENCY POWER SUPPLY
- - EMERGENCY LIGHTING HEAD, 12V-12W
- ↗ - EMERGENCY LIGHTING, 2 HEADS, 12V-12W
- ⊙ - SMOKE ALARM
- ⊙ - MANUAL FIRE ALARM STATION
- ⊙ - FIRE ALARM BELL, 75mm DIA-METER
- - END-OF-LINE RESISTOR
- - MASTER FIRE ALARM PANEL C/W ANNUNCIATOR AND GEL CELL BATTERY AND 120V POWER SUPPLY AND AUTOMATIC CHARGER, 1 ZONE PER FLOOR, 2 ZONES - STAIRS

## ALBERTA HOUSE COST COMPARISON STUDY

BASEMENT FLOOR PLAN  
ELECTRICAL LAYOUT  
SCALE 1" = 5'



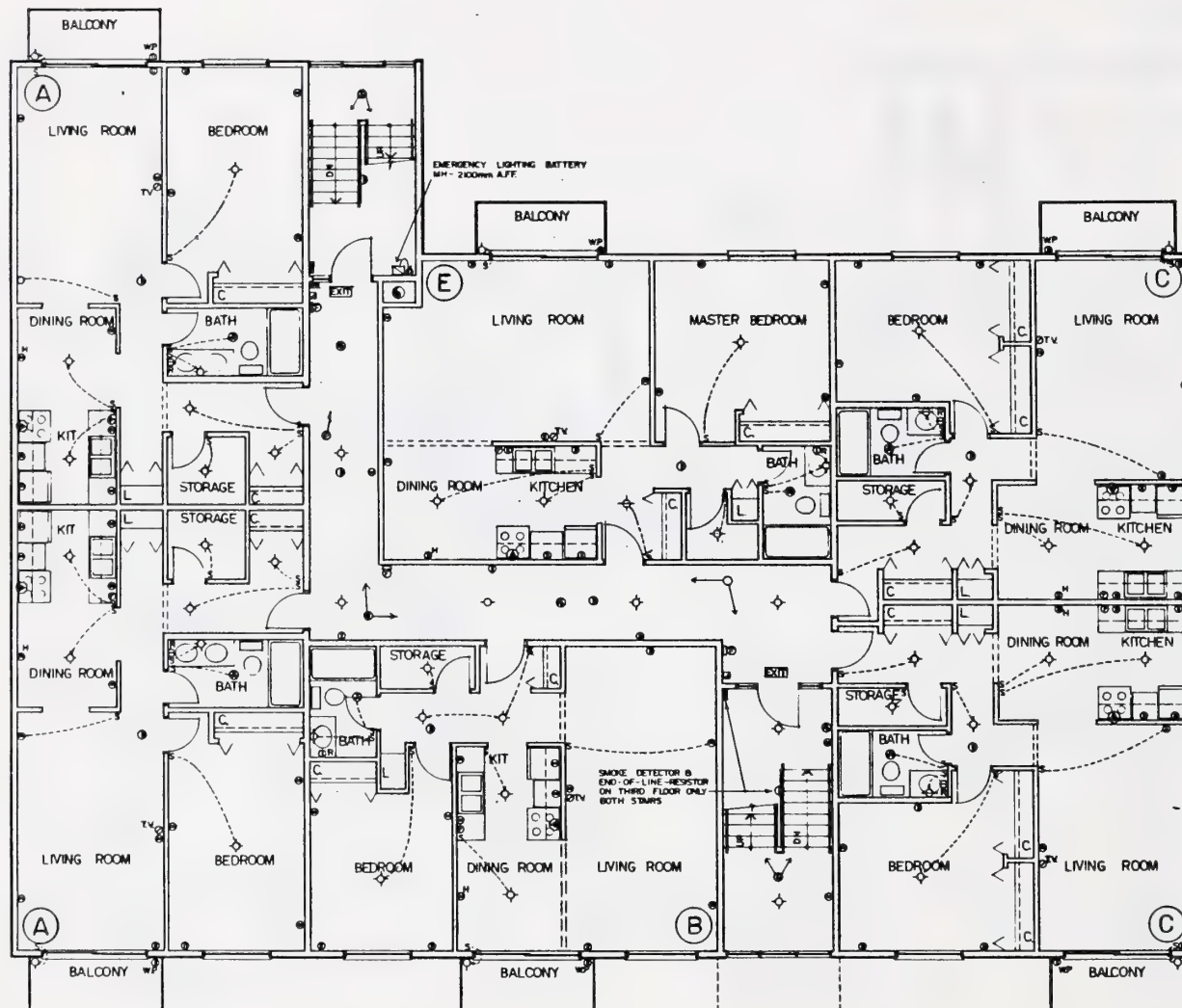


# ALBERTA HOUSE COST COMPARISON STUDY

MAIN FLOOR PLAN  
ELECTRICAL LAYOUT  
SCALE 1" = 50'







ALBERTA HOUSE COST COMPARISON STUDY  
2ND & 3RD FLOOR PLAN  
ELECTRICAL LAYOUT  
SCALE 1" = 30'



## APPENDIX C

Changes From 1986 Alberta House Cost Comparison Study



# SINGLE - DETACHED DWELLING

This appendix notes changes made in the 1987 study as a result of take-off of quantities from the drawings as shown in appendix A in this report. Also noted are the costs of the changes.

| No. | Trade Div.         | Item No. # | Description                                                         | Cost of Changes (Edmonton Prices) |           |
|-----|--------------------|------------|---------------------------------------------------------------------|-----------------------------------|-----------|
| 1   | Excavation         | 1.15       | New item "Stockpile excavated material"                             | add                               | \$99      |
|     |                    | 1.20       | Decreased quantity from 96 m3 to 54 m3                              | deduct                            | \$92      |
|     |                    | 1.40       | Re-arranged description                                             |                                   | \$0       |
|     |                    | 1.50       | New item "Remove excavated material"                                | add                               | \$959     |
| 2   | Concrete           | 2.10       | Re-arranged description ;<br>Decreased quantity from 26 m3 to 23 m3 | deduct                            | (\$277)   |
|     |                    | 2.40       | Increased quantity from 87 m2 to 92 m2                              | add                               | \$51      |
|     |                    | 2.60       | Increased quantity from 19 m2 to 22 m2                              | add                               | \$33      |
| 4   | Siding             | 4.30       | Increased quantity from 41 m to 52 m                                | add                               | \$32      |
|     |                    | 4.40       | New item "Mock shutters"                                            | add                               | \$247     |
| 6   | Carpentry (Rough)  | 6.10       | Decreased quantity from 8 MFBM to 4.8 MFBM                          | deduct                            | (\$1,350) |
|     |                    | 6.20       | Decreased quantity from 2 MFBM to 1.6 MFBM                          | deduct                            | (\$216)   |
|     |                    | 6.30       | Decreased quantity from 381 m2 to 365 m2                            | deduct                            | (\$106)   |
|     |                    | 6.70       | Item deleted "Building paper" (incl. in 4.10)                       |                                   | \$0       |
| 7   | Carpentry (Finish) | 7.10       | Re-arranged description                                             |                                   | \$0       |
|     |                    | 7.30       | Increased quantity from 252 m to 259 m                              | add                               | \$15      |
|     |                    | 7.40       | New item "Attic access hatch"                                       | add                               | \$31      |

## SINGLE - DETACHED DWELLING (Continued)

| No.              | Trade<br>Div. | Item<br>No. * | Description                              | Cost of Changes<br>(Edmonton Prices) |         |
|------------------|---------------|---------------|------------------------------------------|--------------------------------------|---------|
| 10               | Doors         | 10.10         | Change description                       |                                      | \$0     |
| 13               | Wallboard     | 13.10         | Decreased quantity from 447 m2 to 381 m2 | deduct                               | (\$269) |
|                  |               | 13.70         | Re-arranged description                  |                                      | \$0     |
| 15               | Painting      | 15.10         | Increased quantity from 12 m2 to 16 m2   | add                                  | \$20    |
|                  |               | 15.15         | New item "Interior painting"             | add                                  | \$80    |
|                  |               | 15.20         | Decreased quantity from 440 m2 to 392 m2 | deduct                               | (\$114) |
| 17               | Specialties   | 17.50         | Re-arranged description                  |                                      | \$0     |
| 20               | Heating       | 20.10         | Re-arranged description                  |                                      | \$0     |
| TOTAL NET CHANGE |               |               |                                          | deduct                               | (\$673) |

# WALK - UP APARTMENT

This appendix notes changes made in the 1987 study as a result of take-off of quantities from the drawings as shown in appendix A in this report. Also noted are the costs of the changes.

| No. | Trade Div.         | Item No. # | Description                                                         | Cost of Changes (Edmonton Prices) |
|-----|--------------------|------------|---------------------------------------------------------------------|-----------------------------------|
| 1   | Excavation         | 1.10       | Decreased quantity from 891 m3 to 739 m3                            | deduct (\$196)                    |
|     |                    | 1.20       | Decreased quantity from 188 m3 to 121 m3                            | deduct (\$78)                     |
|     |                    | 1.40       | Decreased quantity from 501 m2 to 472 m2 ; re-arranged description  | deduct (\$30)<br>\$0              |
| 2   | Concrete           | 2.10       | Re-arranged description                                             | \$0                               |
|     |                    | 2.20       | Increased quantity from 1,652 kg to 2,628 kg                        | add \$644                         |
| 6   | Carpentry (Rough)  | 6.10       | Decreased quantity from 38 MFBM to 27.5 MFBM                        | deduct (\$29,307)                 |
|     |                    | 6.20       | Decreased quantity from 44 MFBM to 41.5 MFBM                        | deduct (\$1,448)                  |
|     |                    | 6.30       | Decreased quantity from 4,070 m2 to 4,060 m2                        | deduct (\$82)                     |
| 7   | Carpentry (Finish) | 7.10       | Re-arranged description                                             | \$0                               |
|     |                    | 7.20       | Increased quantity from 3,314 m2 to 3,389 m2                        | add \$164                         |
| 8   | Windows & Glazing  | 8.20       | Re-arranged description                                             | \$0                               |
|     |                    | 8.30       | Re-arranged description                                             | \$0                               |
|     |                    | 8.40       | Re-arranged description                                             | \$0                               |
|     |                    | 8.50       | Re-arranged description ;<br>Decreased quantity from 3 No. to 2 No. | \$0<br>deduct (\$132)<br>\$0      |
|     |                    | 8.60       | New item "Grille 0.9 x 0.9m"                                        | add \$114                         |



WALK - UP APARTMENT (Continued)

| No. | Trade<br>Div. | Item<br>No. * | Description                                                             | Cost of Changes<br>(Edmonton Prices) |
|-----|---------------|---------------|-------------------------------------------------------------------------|--------------------------------------|
| 10  | Doors         | 10.06         | Correction in description                                               | \$0                                  |
|     |               | 10.30         | Increased quantity from 78 No. to 80 No.                                | add \$256                            |
| 11  | Hardware      | 11.15         | Increased quantity from 25 No. to 26 No.                                | add \$34                             |
|     |               | 11.25         | Decreased quantity from 129 pr. to 126 pr.                              | Incl. with frames                    |
|     |               | 11.30         | Decreased quantity from 81 sets to 50 sets                              | deduct (\$555)                       |
|     |               | 11.50         | Increased quantity from 14 No. to 26 No.                                | add \$484                            |
| 13  | Wallboard     | 13.10         | Decreased quantity from 3,906 m2 to 2,774 m2                            | deduct (\$4,494)                     |
|     |               | 13.13         | Increased quantity from 734 m2 to 886 m2                                | add \$707                            |
|     |               | 13.16         | Decreased quantity from 1,887m2 to 1,607 m2                             | deduct (\$1,837)                     |
|     |               | 13.17         | Increased quantity from 4 m2 to 9 m2                                    | add \$57                             |
|     |               | 13.40         | Decreased quantity from 1,425 m2 to 1,410 m2                            | deduct (\$29)                        |
|     |               | 13.70         | Re-arranged description                                                 | \$0                                  |
| 14  | Flooring      | 14.10         | Decreased quantity from 364 m2 to 322 m2                                | deduct (\$722)                       |
|     |               | 14.20         | Decreased quantity from 1,296 m2 to 1,240 m2                            | deduct (\$931)                       |
| 15  | Painting      | 15.14         | Quantities broken-out separately                                        | \$0                                  |
|     |               | 15.22         | Decreased quantity from 5,196 m2 to 4,353 m2                            | deduct (\$2,006)                     |
|     |               | 15.30         | Increased quantity from 105 No. to 108 No.                              | add \$76                             |
|     |               | 15.40         | Re-arranged description ;<br>Increased quantity from 2,328 m to 3,389 m | add \$933                            |
|     |               | 15.50         | Increased quantity from 94 m2 to 98 m2                                  | add \$10                             |

WALK - UP APARTMENT (Continued)

| No. | Trade<br>Div. | Item<br>No. * | Description                                                           | Cost of Changes<br>(Edmonton Prices) |
|-----|---------------|---------------|-----------------------------------------------------------------------|--------------------------------------|
| 16  | Fittings      | 16.20         | Re-arranged description                                               | \$0                                  |
| 17  | Specialties   | 17.30         | Re-arranged description                                               | \$0                                  |
|     |               | 17.50         | Re-arranged description ;<br>Increased quantity from 24 No. to 56 No. | add \$264                            |
|     |               | 17.70         | Re-arranged description                                               | \$0                                  |
|     |               | 17.80         | Re-arranged description ;<br>Decreased quantity from 66 m to 33 m     | deduct (\$1,567)                     |
|     |               | 17.90         | Re-arranged description ;<br>Decreased quantity from 54 m to 27 m     | deduct (\$1,809)                     |
| 18  | Appliances    | 18.10         | Re-arranged description                                               | \$0                                  |
| 23  | Electrical    | 23.10         | Re-arranged description                                               | \$0                                  |
|     |               |               | TOTAL NET CHANGE                                                      | deduct (\$41,480)                    |







